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DECEMBER
1934

FLEET OWNER

THE FERGUSON PUBLISHING CO., 30 W. 61ST ST., NEW YORK, N.Y.

Devoted to the Better Operation and Maintenance of Truck, Bus, Taxicab, Passenger Car and All Automotive Fleets

FEATURE ARTICLES:

Cost Accounting for the Fleet
By E. J. Gribbons

Synthetic Slick-Up Cuts Paint Costs
By Maurice Harland

Compulsory Inspection Cuts Accidents
By A. H. Eicholz

Modern Bus Maintenance Practices
By F. R. Fageol

Why Truck Tires Fail Prematurely
By Wilson C. Bray

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CARTER Climatic Control

A DISTINCT ADVANCE IN AUTOMATIC CHOKING

Of unusual interest to the fleet operator is this newest Carter development which, though radical, has met with immediate and widespread acceptance.

Built as an integral unit of the carbureter, Carter Climatic Control eliminates linkage and lost motion. It is sealed against dirt! And it operates uniformly under all climatic conditions without attention.

Enthusiastic comment by owners from Winnipeg to Yuma verifies the claim that Carter Climatic Control provides a distinct advance over other methods of choking.

For greatest economy your motors need a tune-up at regular intervals. To make tune-up fast and accurate we have prepared a series of charts for all models of Carter-equipped cars and trucks. Write for a set today—they're free.

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Division of AMERICAN CAR AND FOUNDRY COMPANY

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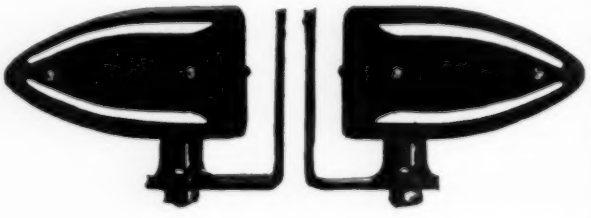
2. To overcome the most serious objection against trucks on the highway—(*a matter every fleet operator is concerned about.*)

3. To remove the most common cause for motor accidents—(*an important and practical contribution to greater public safety on the highways.*)

All this can be accomplished with any truck by spending less than the average price of one new fender.—A PAYING INVESTMENT.



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The

FLEET OWNER

Published Monthly in the interests of Automotive Fleet Owners who maintain their own Repair and Service Shops and devoted to the better Operation and Maintenance of Truck, Trailer, Bus, Passenger Car, Taxicab and all Automotive Fleets.

VOL. 13 New York, December, 1934 No. 6

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. . yet priced $80 lower than the average!

Take any truck you like in the 2-3 ton range. Compare it part by part, specification by specification. You'll quickly and convincingly prove for yourself not only that the General Motors T-18 is superior on at least twelve important counts, but also that it is purposely designed to do more work at lower cost—to make more trips, operate dependably year after year at a surprisingly low cost.

One glance at the T-18, and ten to one you'll pronounce it a good-looking truck as well as a big, husky, capable-looking one. Then, actual inspection will show you that it is every inch a modern truck, one "engineered-for-the-job"—and for that very reason far better fitted for work and earning than trucks less ably built.

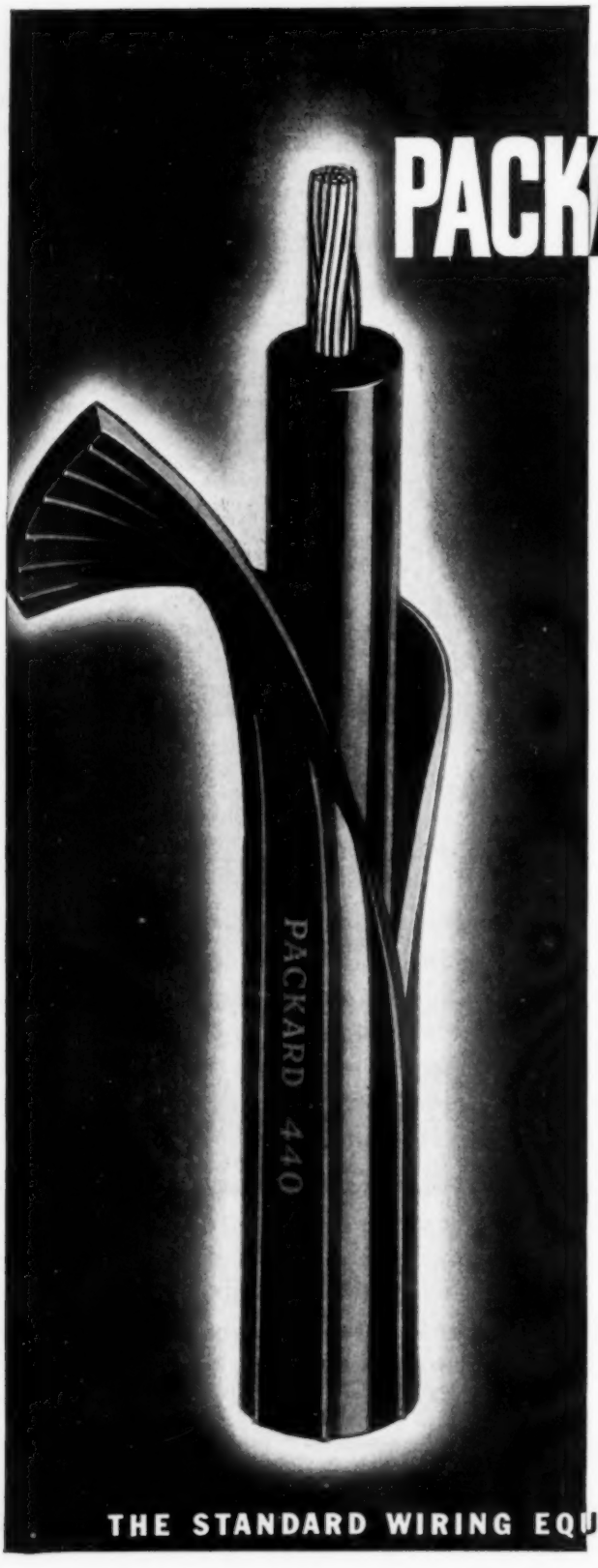
And when you consider the price of this rugged T-18, chassis only $675, f. o. b. Pontiac—actually $80 lower than the average of other trucks of comparable size—you will realize more emphatically than ever that here is downright value you'll find mighty hard to equal.

GENERAL MOTORS TRUCKS AND TRAILERS

GENERAL MOTORS TRUCK COMPANY — Time Payments Available Through Our Own Y. M. A. C. — PONTIAC, MICHIGAN

Say "I saw it in FLEET OWNER"—It Helps!

It costs no more to use the new PACKARD "FOUR-FORTY" Ignition Cable



Because Packard "FOUR-FORTY" is made of the best materials, and with a secret-formula inorganic-base compound that gives it powers of resistance heretofore unknown—you would naturally expect it to cost much more than ordinary ignition cable. But Packard's 30 years of experience and the tremendous resources and facilities at Packard's command have made it possible to produce and sell this new "FOUR-FORTY" at a figure that is only slightly higher than the price of ordinary cable. Actually, it costs LESS to use this new Packard "FOUR-FORTY."

Packard "FOUR-FORTY" minimizes "time out." It has *all* the qualities that an ignition cable *should* have. It offers a new and greater degree of resistance, not only to HEAT, but also to HIGH VOLTAGE RUPTURE, OIL, AGE and CORONA. It is the cable of BALANCED CHARACTERISTICS.

Equip *one* of your units with Packard "FOUR-FORTY." See how it eliminates one out of every three ignition cable replacements. Call your jobber at once—and begin to get *better performance* at *less cost*—with Packard "FOUR-FORTY." Packard Electric Corporation, Warren, Ohio.

Packard
REG. U. S. PAT. OFF.
TRADE MARK

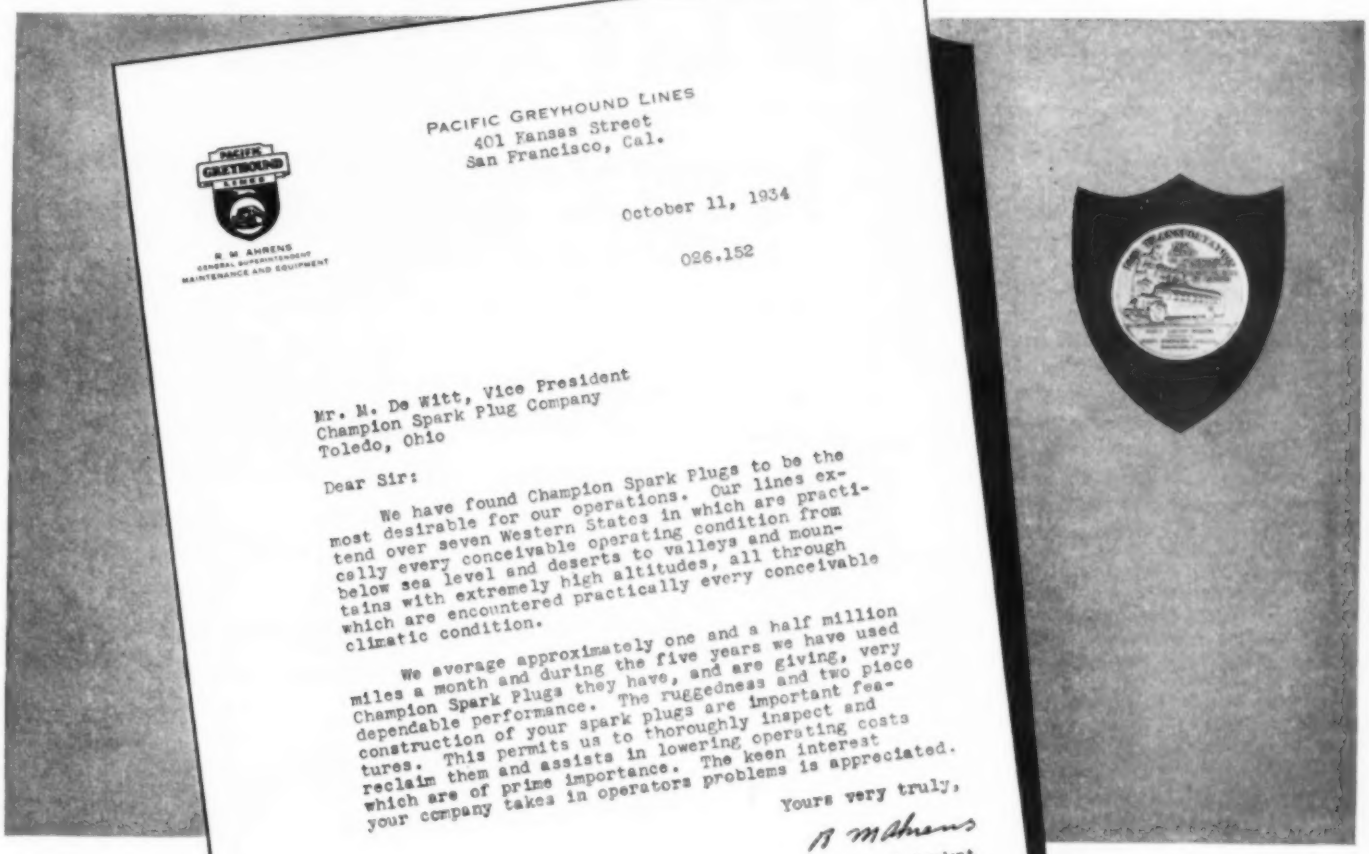
SOLD THROUGH AUTOMOTIVE JOBBERS

THE STANDARD WIRING EQUIPMENT OF THE AUTOMOTIVE INDUSTRY

Say "I saw it in FLEET OWNER"—It Helps!

PACIFIC GREYHOUND LINES

Wins Bus Transportation Maintenance Award using Champion Spark Plugs



PACIFIC GREYHOUND LINES
401 Kansas Street
San Francisco, Cal.

R. M. AHRENS
GENERAL SUPERINTENDENT
MAINTENANCE AND EQUIPMENT

October 11, 1934

026.152

Mr. M. De Witt, Vice President
Champion Spark Plug Company
Toledo, Ohio

Dear Sir:

We have found Champion Spark Plugs to be the most desirable for our operations. Our lines extend over seven Western States in which are practically every conceivable operating condition from below sea level and deserts to valleys and mountains with extremely high altitudes, all through which are encountered practically every conceivable climatic condition.

We average approximately one and a half million miles a month and during the five years we have used Champion Spark Plugs they have, and are giving, very dependable performance. The ruggedness and two piece construction of your spark plugs are important features. This permits us to thoroughly inspect and reclaim them and assists in lowering operating costs which are of prime importance. The keen interest your company takes in operators problems is appreciated.

Yours very truly,

R M Ahrens

General Superintendent
Maintenance and Equipment

USE THE SPARK PLUGS CHAMPIONS USE

NRA CODE APEM 34-01

The Pacific Greyhound Lines, winner of the 1934 Bus Transportation Maintenance Award for "Class A Intercity Companies" has used Champion Spark Plugs exclusively for five years.

The reasons why Pacific Greyhound specifies Champions are briefly and authoritatively stated in the above letter from Mr. R. M. Ahrens, General Superintendent of Maintenance and Equipment.

Every bus and truck operator will find in this letter reasons why the leaders in fleet operation insist on dependable Champion Spark Plugs, and why all owners and operators of trucks and buses interested in maximum performance and lowest maintenance costs, should prefer Champions.

CHAMPION SPARK PLUG COMPANY
TOLEDO • OHIO

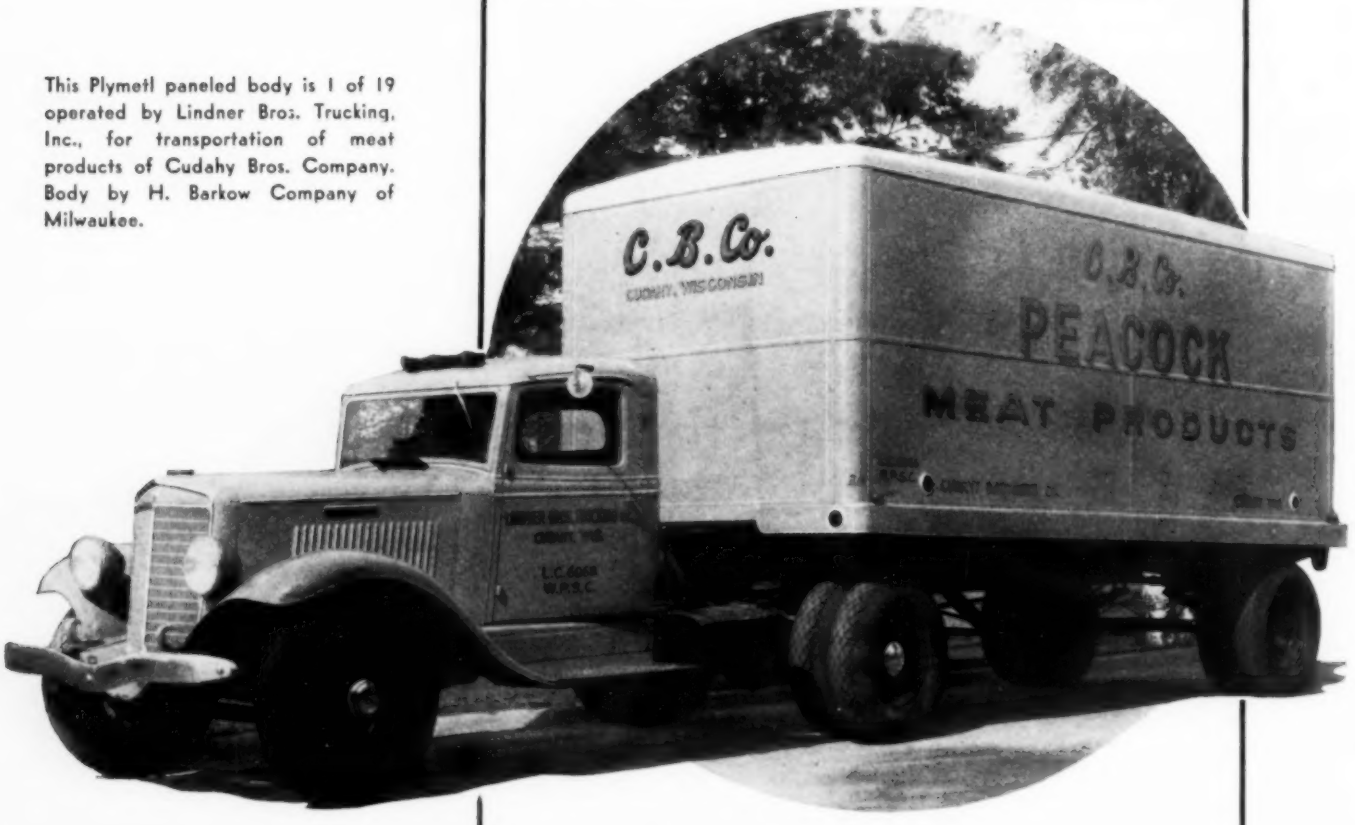
CHAMPION
EXTRA-RANGE SPARK PLUGS

Say "I saw it in FLEET OWNER"—It Helps!

INCREASE *Your* PAYLOAD AND PROFIT WITH PLYMETL

Plymetl panels in your truck specifications mean a lighter, stronger, and more durable body. ● Such a body affects your pocket book two ways—since it is lighter and more durable, maintenance costs are less, and by carrying a greater pay load on every trip, your profits are increased. ● In addition to its lightness and strength characteristics, you will appreciate Plymetl's fine painting qualities. Every Plymetl body is a splendid advertisement for its owner.

HASKELITE MANUFACTURING CORPORATION
208 W. Washington Street Chicago, Illinois



This Plymetl paneled body is 1 of 19 operated by Lindner Bros. Trucking, Inc., for transportation of meat products of Cudahy Bros. Company. Body by H. Barkow Company of Milwaukee.

Say "I saw it in FLEET OWNER"—It Helps!

VOL. 13
NO. 6

FLEET OWNER

DECEMBER
1934

DEVOTED TO THE BETTER OPERATION AND MAINTENANCE OF TRUCK, TRAILER, BUS, TAXICAB, PASSENGER CAR, AND ALL AUTOMOTIVE FLEETS.

Stripping *the* Thread » »

(The Editor's Column)

THE CUSTOMER BE PLEASED

● Just ran into an interesting story which emphasizes nothing but the fact that a pleased customer is the best advertisement. A New York City firm uses electric trucks exclusively for delivering its goods within a limited radius. The "super" is mighty proud of his low cost record and the firm equally satisfied with its trucks. When merchandise has to be delivered *outside* the radius of the electric trucks, the service is turned over to "for hire" carriers. Came a lady from a swanky suburb to buy an electric clock. She presented the fleet superintendent with a tough problem when she insisted that *her* clock be delivered in one of the company's *own* trucks. One of their electrics did the job, however, even if it had to stop on the way home and get a "booster" charge. Of the latter, our lady did not know. No doubt this delivery was made at a considerable loss, but the pleased customer remained pleased. Of course, an enterprising salesman would point out that with gasoline trucks, *all* of the company's deliveries could be made with their own trucks, and eliminate the sometimes unsatisfactory deliveries by independent companies. But the company thinks differently and has its records to substantiate this somewhat odd delivery procedure.

●

DOPE ON DIESELS

● Those who attended the S.A.E. Transportation Meeting last month considered themselves well repaid for the time spent there, particularly those who "took in" the Diesel session . . . "And what about the Diesel session?" many will ask. The feature consisted of a paper which related the quite satisfactory Diesel engine experiences of the London General Omnibus Corporation, which, up to September, 1934, was operating 407 buses powered by oil engines of the compression-ignition type . . . You will be particularly interested in learning that they are operating these with no more service difficulties than with conventional gasoline engines; that they are *not* bothered with smoky exhausts; that bearings *do* stand up; that injection systems do not carbonize or foul-up; that decarbonization is done no more frequently than with gasoline engines; that the same thing applies to major overhauls; and, last but not least, that the reduction in fuel costs is a *real* one, and is not outweighed by excessive maintenance costs, as many of us probably believed . . . Unfortunately, none of those fleet operators using Diesels in this country were present to relate *their* experiences, which we understand are equally successful. However, the general concensus of opinion at this meeting, as expressed by many of the operators present, was that Diesels "have arrived." A more universal adoption of Diesels in this country during 1935, therefore, would not surprise us. . . . One reason for their comparatively slow progress is probably because up to the present they have only been available in large sizes, and the preponderance of demand for commercial vehicle equipment, as we all well realize, is in the lighter-duty classification. . . . The progress of Diesels during 1935 will well bear watching, we intimate.

●

ANOTHER FOR RIP

● You may not believe it, but there's a truck that has to have its left side repainted more often than its right side. The truck belongs to United Parcel Service and travels over the same route once each day. The outgoing run is made at night and the return is made in the early morning. Therefore the left side is the only side ever exposed to the sun's rays, which accounts for its requiring refinishing more often than the right. Bert Barnes calls this strange fact to our attention. It's interesting and true.

●

A COLD BURN-OFF

● The boys in the paint shop will undoubtedly welcome the news that they can throw away their blow-torches and paint-remover pots, for once and all. Not that they'll never have further occasion to remove the old finish, but rather because someone has conceived a new "cold-strip" method. Briefly, it consists of a process in which you simply spray on, cold, a new non-inflammable, viscous substance. Let it stand for a half-hour and hose it off with plain, *cold* water. The manufacturer tells us that it works wonders in removing synthetic enamels, paints and varnishes, but that it won't touch lacquers. If you'd like to hear more about it, we'll be glad to see that literature is sent; sans cost, obligation or salesmen.

●

SHORT, SHORT STORY

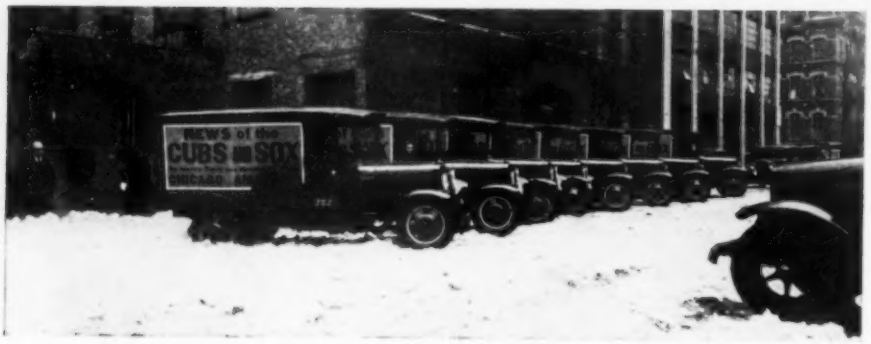
● "I don't think it will freeze to-night; the paper says 'fair and warmer.' We'll just park this truck in the driveway and put in some anti-freeze the first thing in the morning."—(P. S. They cracked the block).

●

H. Clay Fischer
Editor

●

Analyzing a Typical Fleet Operation



This analysis represents a very complete survey of a Newspaper Delivery Fleet using vehicles of the type shown above. You will find it very thorough and perhaps can make use of some of the recommendations in your own operation. We are not permitted to reveal the identity of the operation analyzed, so to make it somewhat confusing, we have selected the above photo of a newspaper fleet, giving baseball news with two feet of snow on the ground. The trucks shown above do NOT belong to the fleet operation analyzed.—Editor.

●

By Everett J. Gribbons, M. E.

Article III—Cost Accounting in the Fleet

● (EDITOR'S NOTE: *The author of this article recently completed a thesis on the subject of Fleet Operation and Maintenance, which outlined in detail the operation, maintenance and cost accounting system in use by a New England newspaper fleet. In addition to presenting the experience data, he subsequently made an analysis, showed comparisons, pointed out probable savings and made specific and general recommendations, just as any industrial engineer or efficiency expert might do. We have broken this thesis down into a series of articles, the first two of which appeared in our October and November issues. In this issue there is a brief resumé of the cost-accounting system at present used by the Combined Publishing Company and it will be followed with an article covering a suggested, improved system advocated by the author. You'll remember that the name of the fleet is a fictitious one, but that the data are facts, won't you?—H. C. F.*)

●

ONE of the most controversial subjects in fleet management is the choice of a proper cost-accounting system. Most of the leading truck manufacturers have designed cost-accounting systems to fit the transportation field in general, which can be purchased at reasonable cost. These utilize several blank forms which comprise the systems, and cover all phases of *general* truck transportation.

However, these general systems usually involve the cost of "units delivered" such as tons, cases, etc., hauled; but in the newspaper field, "service" is such an important development that in most cases nothing would be gained by comparing the delivery cost "per newspaper." For example, a truck might be sent on a two-mile run with a hundred papers in order to serve a shop which closes at a certain hour; another truck may deliver a thousand newspapers at an agency located a half-mile away.

It is the authors opinion, therefore, that a cost-accounting system should be designed to fit the special needs of this particular fleet operation.

In this article, we shall review briefly the cost-accounting system now in use at the Combined Publishing Company. This system was briefly described in the October issue of this publication. It utilizes the forms which are illustrated within this article. These forms, with the exception of the Driver's Daily Gas and Oil Report, which is approximately 3½ x 3½ inches in actual size, are printed on a good grade of ledger paper, the size of which is 24 x 19 inches. All of the large forms are kept in one large book. Once each year, the monthly records are removed and filed; the yearly summaries remain permanently in the binder.

DRIVER'S DAILY GAS AND OIL RECORD

Car No..... Date.....

Gals. Gas.....

Qts. Oil.....

Signed .....

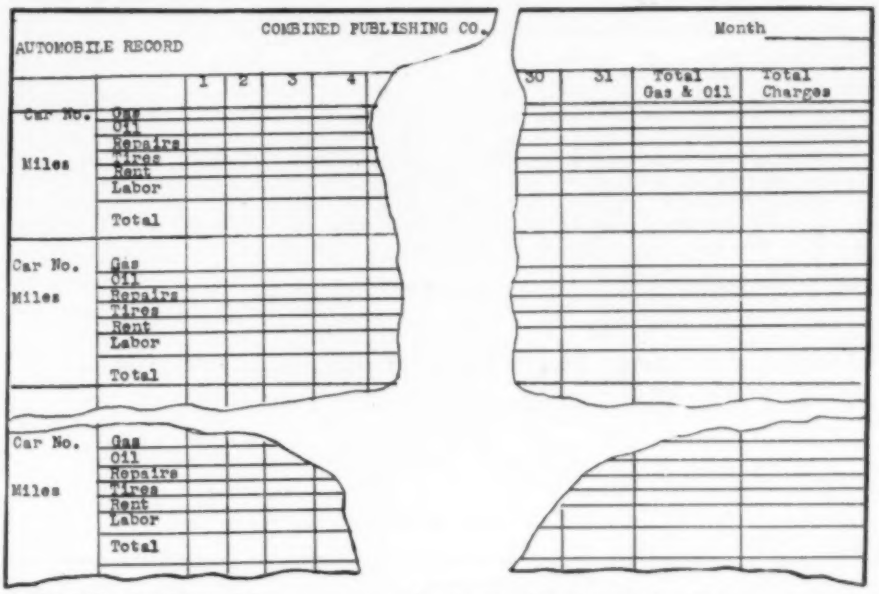
This form is filled out and signed by each driver when supplies are replenished. All of these reports are submitted at the end of the month by the garage foreman.

The Driver's Gas and Oil Reports are filled out daily. The garage foreman summarizes them on the monthly Gas and Oil Record Form, also illustrated. The daily slips, together with the monthly report are sent to the accounting office at the end of the month. The gas and oil charge for each vehicle is then transferred to the proper account in the Monthly Cost Record.

About one-third of the motor oil used is reclaimed, and a government tax of one cent per quart is paid on all oil thus reclaimed. The total amount of the tax for the month is added to the cost of new oil used during the period. No direct charge is then made for the reclaimed oil while it is being used; the oil charge, as it appears on the cost records, is for new oil, weighted with the government tax.

Repairs: Under the heading of

ANALYZING A TYPICAL COST SET-UP *(Continued)*

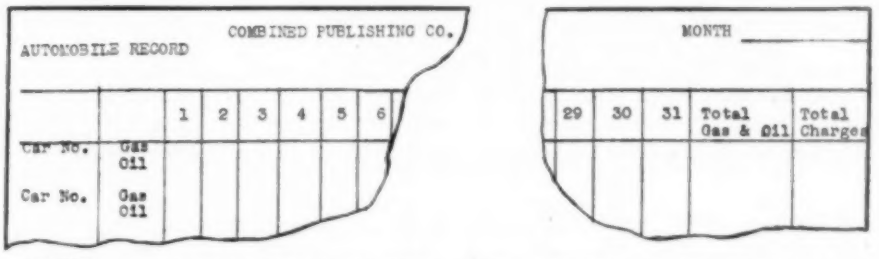


This Monthly Cost Record form, now in use by the Combined Publishing Company is printed on ledger paper, 24 x 19 inches in size. The headings include Gas, Oil, Repairs, Tires, Rent and Labor. The Repairs heading includes all actual expenditures made during the period for parts and accessories, with the exception of Tires. In addition, the sums spent for small accessories and supplies is divided evenly among all cars and included as Repairs. This is one of the faults of this cost-keeping system.

Repairs appearing on the Monthly and Yearly Cost Records are listed all actual expenditures made during the period for parts and accessories, with the exception of tires. In addition, the sums spent for grease, lightbulbs, anti-freeze solutions, tire-chains, spark plugs, small tools and other miscellaneous items, are totalled and the entire sum is divided evenly among all cars. Outside labor, such as that involved in reboring a cylinder block, painting new cars, etc., is also listed under the heading of Repairs.

Tires: Tires are charged directly to the vehicle to which they are applied; the total cost of the tires for each vehicle is listed. Original-equipment tires are *not* carried under the tire account, but are included in the initial investment and depreciated over the life of each vehicle.

Rent: The total rent charge for the month is divided equally among all vehicles and the proper charge for each vehicle is entered under the general heading of Rent. Heat, light and power are all included in the rent charge.



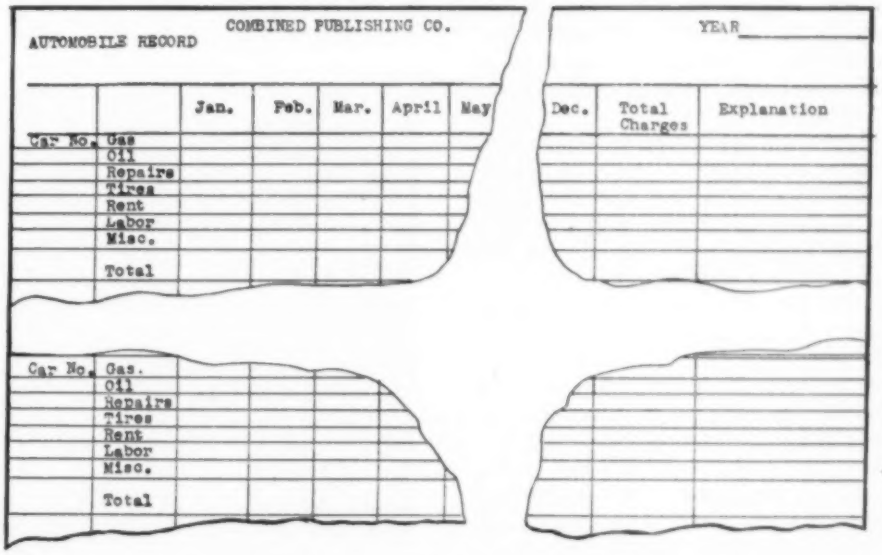
And here is the Gas and Oil Monthly Record. The Driver's Daily Gas and Oil Report, illustrated on the preceding page, is filled out and signed by the driver when supplies are replenished. The information thus obtained is transferred to this Monthly Gas and Oil Record, which is filled out by the garage foreman during his spare time. It is submitted to the accounting department at the end of each month.

Labor: The total garage payroll for the month is divided equally among all vehicles and is listed under the general heading of Labor.

Accidents: Collision insurance is carried on all vehicles of the fleet; the policy is of the $50-deductible type. When a vehicle is involved in an accident and it is necessary for the company to make an expenditure, a separate heading, "Accident," is set up in a blank space under Labor, and the proper amount is recorded therein.

Depreciation: Vehicle depreciation is carried in the general books of the company and does not appear in the Automobile Records. All of the trucks, with the exception of a ½-ton Ford, are considered "heavy" vehicles, and are depreciated over a four-year period; each year, therefore, bears one-fourth of the initial investment. The coupes, sedans and the Ford truck just mentioned are depreciated over a three-year period; one-third of the total investment being allocated to each year.

Insurance: The insurance premium is listed under "expenses" in the (*Cont. on p.* 39)



This is the Yearly Cost Record form, in use by Combined Publishing Company. It is also printed on ledger paper, 24 x 19 inches in size. The information it contains is obtained from the Monthly Cost Record form, shown at the top of this page. All of these forms are kept in one large book. Once each year the monthly records are removed and filed; the yearly summaries remain permanently in the binder.

Synthetic "Slick-Up" Slashes Paint Costs

Editor's Note:

● This is the first of an interesting series of articles on the subject of fleet painting. As you will note, the author is a practical man who has had years of commercial vehicle refinishing experience behind him. Getting off to a good start, he has made this first article VERY general, realizing that no busy operator wants to be bored with specifications and schedules. In our next issue, we shall take up the problems of paint peeling (remembering last Winter) and the author will explain how he overcame this in his own fleet.

●

--And Keeps Our Fleet Always Looking At Its Best; Constant Attention to "Paint-Maintenance" Is Good Advertising and Most Economical

By Maurice Harland,

Foreman Painter and Letterer, Gordon Baking Co., Long Island City, N. Y.

WITHOUT a doubt, the part of any organization most constantly before the public eye is its delivery equipment. Its trucks are always on parade. Depending on the owner and the care they receive, they can be either a credit or a disgrace. Although most people are busy and preoccupied with their own affairs, all register impressions more or less subconsciously. Often one becomes aware of a firm only through the frequent appearance of its trucks.

The advertising value of a truck is perhaps not realized by everyone to the fullest extent. Think of the advantage of this form of publicity. Moveable choice locations with no high rent; adaptation to any form of layout and design, and no costly mechanism. If the truth were known, it would be found that an attractive vehicle, with a tactful message actually *pays dividends* in increased sales.

The task of keeping a fleet of trucks attractive is not difficult if approached sensibly. However, the intricacies of vehicle painting are frequently under-estimated. The job of "painting-maintenance" should be in the hands of a competent man. If he has the confidence of his employer, his judgment should be respected; if he has not, he should be replaced. Moreover, no painting program should be undertaken without regard to its individual problems. It cannot be said that a certain material or procedure should be used for this or that, without considering the particular requirements of the case.

At the present time there are four vehicle painting mediums in common use. These are: synthetic enamels, oil base enamels, lacquer, and the old paint-and-varnish system.

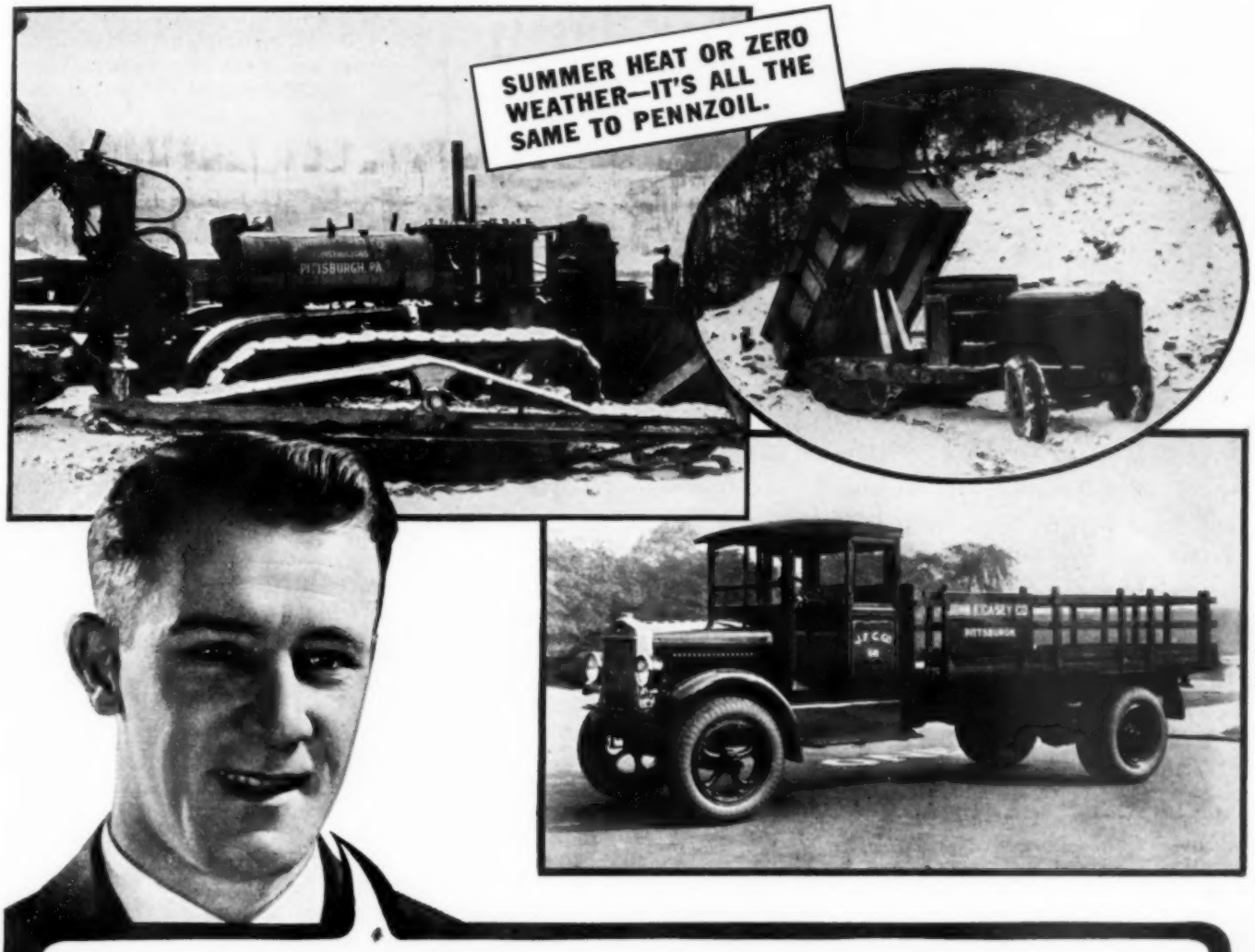
For truck painting, the writer is prejudiced in favor of synthetics. Oil-base enamels run a close second. In this respect, I think most people who are informed on the subject will agree. In the short time since its development synthetic enamel has fulfilled all its requirements admirably. With due regard to economy, appearance and durability, it has no superior. This applies to the products of leading manufacturers with which the writer is familiar. Of course it will be found that a cheap material may be found wanting. The answer is, buy from a firm you can trust.

Synthetic enamels are applied with a minimum of labor, have amazing durability and present a surface appearance only slightly inferior to lacquer. While lacquer is unsurpassed for high grade passenger car work, it has one or two serious faults when used on trucks. It has a distinct aversion to wood surfaces and often reveals a notable lack of resilience. In addition it can be used successfully over an old finish *only if that finish is also lacquer*. The main fault of paint-and-varnish is that it "can't take it." The superiority of synthetic over this age-old system is unquestionable.

At this point let it be stated that we have no intention of enriching these pages with the many details of painting. That subject will be taken up in later articles.

(*Please turn to page* 40)

Truck advertising is held in high esteem by the Gordon Baking Company. This vehicle, constructed and maintained at considerable expense, is used solely for advertising purposes and according to the owners, it justifies its existence. Some notable innovations in body construction, design and treatment are apparent in this departure from the ordinary.



PENNZOIL KEEPS THIS EQUIPMENT ON THE JOB

GIVES PERFECT SATISFACTION FOR THE JOHN F. CASEY CO., OF PITTSBURGH, PA.

BIG JOBS. Heavy duty equipment. A weak oil hasn't a chance here! But PENNZOIL can "take it." Protects the costly equipment of the John F. Casey Company of Pittsburgh. Keeps trucks, tractors, power shovels, graders on the job. Ready for action—summer or winter.

No wonder this big construction company uses PENNZOIL exclusively . . . not only for road equipment, but for *all* lubricating jobs in the repair and machine shops as well.

Saves on Gas

Hundreds of fleet owners report substantial savings after switching to PENNZOIL. Savings in oil consumption . . . in maintenance and replacement . . . in actual gasoline costs.

So if you've been using plain oil in your trucks, you'll be surprised at the difference that PENNZOIL makes. With PENNZOIL, all non-lubricating elements are removed. Gas-eating "engine-drag" is reduced remarkably, allowing motors to develop more power, more revolutions per minute.

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Say "I saw it in FLEET OWNER"—It Helps!

Or, If Yours Is a Truck Fleet, This Interesting Analysis of Maintenance Methods Will Be Found To Be Equally Applicable

•

By Frank R. Fageol,
President, Twin Coach Corporation

TO take advantage of what has been referred to as modern motor coach construction and design, improved maintenance methods will play a very important part. Improvements and developments in design and construction of motor buses will be of little advantage to the operator, unless there is also a comparable improvement in maintenance methods.

By "maintenance" we mean properly taking care of a motor vehicle regardless of make or design, in a manner that assures reliable, comfortable, clean, safe, efficient service as well as a maximum life for all of the parts.

While great progress has been made in maintenance methods, it does not seem that the industry has yet adopted the best, general, fundamental method of maintenance, and one that is comparable to the uniform scale covering the design and manufacture of buses.

There is nothing mysterious or uncertain about bus maintenance and life of parts. Satisfactory operation and maintenance costs for buses will be in direct proportion to the *used* intelligence of the men in charge of maintenance and the type of men assigned to this work —plus an open mind on motor coach transportation.

The simplest and perhaps the best bus maintenance system should embody simple procedures, in substantially the following sequence:

First, we should contemplate a modern, clean, well-lighted maintenance building. Its appurtenances should be arranged so as to give maximum flexibility covering the time which can be allocated to inspection. There should be ability to shunt out of line and place in proper location any given bus, to cover an emergency maintenance requirement. In connection with this building (a blueprint of which will be sent gratis, on request to the Editor of this publication), the recommended facilities and procedure can be substantially as follows:

(a) Coaches coming off the routes should be left at the entrance of the maintenance building by the driver, who should be trained to report in detail any and all complaints from passengers, or noticeable troubles with the vehicle which he has been driving.

(b) A thoroughly trained, high grade, well-paid in-coming inspector should assume charge of the vehicle at this point. His duty is to interpret the driver's report and schedule the vehicle for refueling and storage or assign it to the proper repair department.

(c) In the interest of controlling expenses for cleaning, fuel and lubricating oil, the inspector will route a vehicle requiring repairs to its proper position. After repairs are completed, the coach will then be refueled, lubricated and inspected before leaving for the route, thereby assuring against road failures.

(d) Gas and oil facilities should be located at or near entrances.

(e) Next in line, wash racks.

(f) Next in line, grease-well and inspection pits. Greasers can be trained to become primary inspectors, and to aid the inspectors in making out work orders covering emergency work required before scheduled mileage inspection.

(g) Layout of facilities should have sufficient flexibility to permit buses to be moved directly from grease rack to storage, to light repair department, or the heavy overhaul department.

The foregoing provides the necessary work and light inspection on buses. In addition, the following should be provided for:

(a) Provision for regular scheduled work on a mileage basis, which must necessarily vary on different properties in accordance with density of traffic and severity of operation. This should include Inspection, Lubrication, Light Overhaul and Major Overhaul.

(b) Provision for overhauling the major units in buses on varying mileages, rather than all at one time.

(c) Provision for a simple record system, so kept as to instantly show the history of each individual

Gasoline and oil facilities should be located at or near entrances. This outdoor filling station is a part of the bus garage of a leading New England bus operation.

MAINTENANCE *and* INSPECTION METHODS *(Continued)*

unit on any bus.

(d) It is most important to provide a set of explicit standard instructions to be issued with each assignment of work to a mechanic.

(e) Provision for an office record comprising a time study of each operation of maintenance; this time limit study not to represent the fastest mechanic, but rather a reasonable average time requirement. By this method the efficiency of each workman can be rated and thus an accurate cost budget scientifically set up and adhered to.

There is one operation on which time should be practically unlimited. This is on inspection. Unfortunately, many operators seem to pick on inspection as the one part of maintenance procedure for which only a very limited and unflexible amount of time is provided.

An experience record can, in time, be built up on any property, which will as accurately forecast the average mileage life of any part in a motor bus in much the same way that the average life span of men and women is forecast by the experience tables of the larger insurance companies.

Experience indicates that the lowest maintenance costs and most satisfactory results are obtained only when the operator provides an adequate stock of replacement parts of known quality. Regardless of the make of vehicle, the use of approved parts insures the user at all times of getting the latest and most improved materials for use.

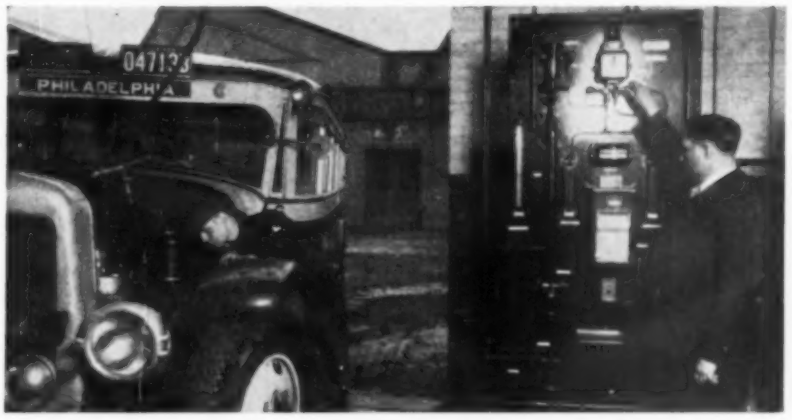
When proper maintenance methods and records are set up, any operator can get along with a surprisingly small stock of parts. His maintenance records will furnish him with the information whereunder, on the first of any given month, he can order the parts known to be necessary for work during the next month following. This procedure answers the age-old problem of having a stockroom filled up with obsolete parts, with attendant losses and expenses.

Road failures and delays can be practically eliminated, provided that common-sense or so-called scientific preventive maintenance methods are universally adopted and administered. Then the life of a motor vehicle will be so long that we manufacturers, in order to find new markets, will have to hire the finest artists to design new styles and the best advertising agencies to write propaganda to make the old buses obsolete.

In one of the foregoing paragraphs I mentioned the administration of proper preventive maintenance methods. That, I think, is the most important item of all, because no matter how good the system, it will only succeed in direct proportion to the way it is administered.

The suggested maintenance plan to which reference is made, is based on the accumulated experience of properties throughout the industry, working in close cooperation with the manufacturer, through men in charge of actual production and men in charge of actual maintenance. It is only through such cooperation that the most economical and efficiently designed vehicle can be produced, improved and operated at a reasonably low cost per mile. The above procedure eliminates all theory and necessitates the basing of all decisions on facts.

(Editor's Note: This article is abstracted from Mr. Fageol's discussion at the recent meeting of the Middle Atlantic States Equipment Men's Association, held in Philadelphia, Pa. The maintenance and inspection system outlined in this article was developed in collaboration with Paul H. Brehm, General Manager of the Twin Coach Corp., who personally has assisted in the servicing of thousands of fleet-operated motor vehicles.)



Exhaust gas analysis has done much to effect fuel and lubrication economies. Every fleet should have its vehicles subjected to this routine. Smaller and simpler apparatus than that shown here have been perfected and they seem to be entirely satisfactory.

Inspection is one operation on which time should be practically unlimited. A thoroughly trained, high-grade, well-paid inspector should be hired. Unfortunately, many operators seem to think that inspection is something that can be performed in an indifferent fashion.

Compulsory Inspection Cuts Accidents 25%

By A. H. Eicholz,
General Manager, M. E. M. A.

Municipalities Will Be Interested in This Satisfactory Experience of the City of Memphis; Here's How the Job Was Done:

ON the sound idea that the time to prevent accidents is *before* they happen, and honestly motivated by the desire to proceed along these lines and at the same time avoid the pitfalls of graft and favoritism so patently related to many compulsory automotive inspection schemes, Memphis, Tenn., run by a commission form of government, passed an ordinance as recently as January, 1934, requiring all vehicles operating in that city to be officially inspected at least once every six months by the Motor Vehicle Inspection Bureau.

Vehicles meeting the requirements are tagged with official certificates on the windshields, for which the very nominal charge of 50c is made. Any car or fleet owner may have his vehicles tested as frequently as he desires on the Inspection Bureau equipment without additional cost. Inspection includes all of the most important safety factors—brakes, steering, alignment, headlights, tail light, windshield wiper, rear vision mirror and horn.

The 48,000 cars, trucks, buses, taxicabs and other motor vehicles of Memphis come to the Bureau at least twice a year for inspection. Many owners and drivers appear at more frequent intervals. A total of about 135,000 tests are made annually. Equipment and attendents can handle 1,200 or more tests a day. There is no confusion, seldom any waiting, and the Bureau has a file record of the safety condition of every motor vehicle in Memphis.

The Bureau does no repair work. No inspector or other employe is permitted to recommend or even suggest any particular repair shop or service. No advertising is permitted on or around the inspection premises.

Thus the Memphis plan eliminates the many highly objectionable features of the so-called "authorized inspection stations" which have been used in some cities. There can be no charge of "favoritism" so long as inspection and repairs are completely divorced.

About 500 car owners per day are notified by official post card from the Bureau to appear for inspection. In addition, about an equal number come voluntarily for test or re-test. Thus the daily amount of inspection work is kept fairly steady. The Bureau is open every business day of the year. Owners of rejected cars are given a week to make necessary corrections. They can make such adjustments themselves, or have the work done anywhere they please.

A permanent "Bureau", such as used by Memphis, is not the only way of doing a good safety job. A safety campaign lasting a month, in Flint, Mich., a few years ago, was carried out on the street, as shown above. The actual cost in this case was only $273.77.

Naturally, for human nature is ever thus, in a few isolated instances, compulsion was at first necessary to bring some owners in for the tests, or to see that they attended to the needed safety work required. But the overwhelming majority of vehicle owners have enthusiastically cooperated. It has been amply proven that they are glad to have unsafe conditions called to their attention and are happy when their cars pass inspection.

It is significant that during the first six months of the Bureau's operation, more than 37 per cent of the cars inspected had to be rejected, notwithstanding the intentionally low minimum at which safety requirements were established.

Furthermore, the number of traffic accidents in Memphis has diminished steadily ever since compulsory inspection began. The casualty records consequently have improved. Memphis enjoys the lowest automobile insurance rates of any city of its class.

Fatalities from automobile accidents have decreased 25 per cent since compulsory inspection began. The number of injuries have been reduced accordingly. Insurance reports show a substantial decline in claims for property damage.

These earliest reports on the results obtained from compulsory inspection as it is practiced in Memphis show an improvement in traffic conditions that places Memphis in a class by itself among cities of its size. All users of motor vehicles and pedestrians enjoy a measure of safety unsurpassed and probably unequalled in any large city in the country.

Thus the established record shows:

1—Decrease in accidents with correspondingly fewer deaths and injuries, and less property damage.

2—Lower insurance rates.

3—Adequate inspection of the safety of common carriers such as buses and taxicabs.

4—Definite standards provided for the quality of garage service.

5—Headquarters for eyesight tests, driver examinations and licensing.

6—Additional indirect benefits

(*Please turn to page* 18)

HERE IS THE TRUE STORY ABOUT SIDEWALL FAILURES IN TRUCK TIRES

You know the grief you've had with sidewall failures! Almost everybody has had the same trouble. Time and time again, nearly new tires have gone bad before the tread was worn. Every year thousands of dollars in unused tire mileage roll onto scrap piles.

There's a reason. Think of the forces that tear at tires! With every start, tires get a thrust—with every stop, a yank. And always—as a tire rolls—heavy loads flex the casing—several hundred times a minute. Every mile, every minute, these forces batter away at your tires.

WHY TIRES BLOW OUT

No wonder ordinary tires can't stand the gaff! They can't take it because they lack strength where they need it most—*in the sidewall!* Right there is the weak spot of ordinary tires. That's the point where stresses concentrate. That's the part of the tire that lets go—in eight out of ten premature failures. Actual figures prove that 80% of these tire failures occur in the sidewall "Failure Zone."

Goodrich engineers licked this greatest cause of tire failure at the source. They did it with Triple Protection—built into the sidewall of every Goodrich Silvertown.

Look at the tire section below. See the arrows pointing to the three exclusive Goodrich features.

Plyflex, a new tough sturdy rubber material, is the first protection. A layer of Plyflex in the sidewall prevents ply separation—distributes stresses—checks local weakness.

Ply-Lock, the second point of Triple Protection, takes its name from what it does. *It locks the plies about the bead.* Anchors them in place. In ordinary tires, loosened ply ends hasten premature failure. Here is *positive protection* against the short plies tearing loose.

The third Goodrich feature—100% *Full-Floating Cord*—checks friction inside truck tires. Evenly spaced, rubber-insulated, cords can't touch or rub together. In ordinary cross-woven fabric, when cords touch, they saw away at each other every time the tire flexes. Eventually they may snap. This can't happen in Silvertowns! *There are no cross cords to cause friction* in Goodrich Tires.

DON'T GAMBLE

Ask yourself—is it worth taking a chance on sidewall blow-outs when you can get all this protection without paying a penny more?

Start getting full value for your tire dollars *now.* Whether you operate one truck or a fleet, Goodrich offers you the utmost in tire service at no extra cost. For Goodrich Silvertowns—even with Triple Protection—cost you no more than ordinary tires. See your Goodrich dealer today.

FREE! Trucker's Handbook—Write today for your free copy of "The Truck Operator's Handbook," full of valuable truck tire data that you can put to immediate use. No obligation. Address Department T-161, The B. F. Goodrich Company, Akron, Ohio.

Goodrich *Triple Protected* **Silvertowns**
FOR TRUCKS AND BUSES

Say "I saw it in FLEET OWNER"—It Helps!

HOW THEY DO IT IN MEMPHIS (*Continued*)

have been obtained from the prolonged life of motor vehicles through better maintenance, recovery of stolen cars through checking motor numbers, and the continuous dissemination of safety information. "Shade tree" and "fly-by-night" service shops are disappearing under the necessity of attaining definite standards. Car owners are being better educated with respect to safety tests and thus have a check on their service garage, and garage owners have a check on their mechanics. Garage employment has increased.

The cost of the Memphis plan of Compulsory Automotive Safety Inspection has been nominal, in proportion to its benefits, particularly in view of the savings in insurance costs, property damage, and personal injuries.

Here's an outside view of the municipal motor vehicle inspection bureau operated by the City of Memphis, Tenn.

Testing equipment cost $4,500. Office equipment cost $2,000. The monthly pay roll is $2,300. It takes care of 18 inspectors, 2 porters, 1 cashier, 1 stenographer-clerk, the Supervisor and his assistant. Revenues (only 50c per car twice a year) pay all operating and maintenance costs and provide a surplus.

Experience shows that in the average community where Compulsory Inspection is adopted with an annual fee of $1 per vehicle, the first year's income will pay all operating expenses and in addition return the entire original investment necessary for buildings and equipment. If buildings and equipment are charged off over a 5-year period, there will accrue a surplus of approximately 30c per car each year, which can be available for the purchase or lease of necessary ground, and the extension of street and highway safety service.

The Memphis plan of Compulsory Inspection is approved and enthusiastically endorsed by the Memphis Automobile Dealers Association, the Memphis Independent Garage Association, the Parent-Teachers Association, all of the Civic Clubs of the City, the Automobile Club, the Casualty Insurance Underwriters, the Ministerial Association, all of the principal Fleet Owners, including the Oil Companies, Light Company, Bus Lines, and innumerable others.

Such complete endorsement is gratifying to all public officials, and particularly to Vice Mayor Commissioner Clifford Davis, from whose experience the plan was conceived, and whose sponsorship resulted in adoption of the present provenly practical, economic, honest and altogether efficient safety program.

After damage by collision it is seldom possible to ascertain the condition of the safety factors of the vehicles prior to the accident. Live drivers are unwilling to admit the actual conditions which existed. Dead ones are unable to do so! Thus there is much unreliability to statistics as to the percentage of accidents due to defective equipment. The importance of mechanical and other defects as a cause of automobile accidents stands fully revealed by the lowered casualty rate which is secured under Compulsory Inspection.

Compulsory Motor Vehicle Inspection is being seriously considered by many cities and states. The sensible Memphis plan has shown the way to go about such programs at least expense to citizens, with avoidance of the common objectionable features, and with proven economy and efficiency. It is a plan that provides an answer to the mounting casualty toll from traffic accidents, decreasing financial loss and misery, increasing happiness.

Des Moines, Iowa, already has followed suit. The State of Maryland has adopted state-wide inspection with outstanding success, and other communities are watching these highly significant developments with interest.

The Vision of Public Safety thus is proceeding farther along the way to nation-wide materialization. Drivers drive with a new sense of security in the safety performance of their vehicles and in the knowledge that the other fellow's vehicle, be it passenger car, truck, taxicab, bus or other motor vehicle, also is in safe driving condition. So far as safety depends on mechanical factors, Compulsory Inspection honestly, economically and efficiently maintained can provide it.

And here's an interior view, showing the safety testing "lanes" and some of the equipment used.

●

More Buses and Trucks Used By Railroads

RAILROADS of the United States have greatly increased their truck and bus operations during the past three years, according to late reports.

In 1930, only 34 Class I roads operated 3,105 buses directly or indirectly, while in 1933 approximately 75 railroads were operating 4,500 motor coaches.

Many railroads now operate subsidiary bus lines, which serve in part as feeders for their rail service, but a more significant development is seen in the increasing use of trucks by the railroads.

In 1930, only 18 Class I railroads engaged in intercity or terminal motor trucking operations, employing 660 trucks and trailers for the purpose. In 1933 more than 100 roads were using approximately 42,000 vehicles in this work.

Brand New HALL Model E-J Low Price!

ECCENTRIC Valve Seat Grinder

E-J Grinder comes with Diamond Dresser Stand as shown above

$89. Complete with Diamond Dresser

Why be satisfied with any other type of seat grinding equipment when, at this new low price, you can own a genuine ECCENTRIC Valve Seat Grinder identical in principle and performance with ECCENTRIC Grinding Equipment in use by leading manufacturers and thousands of fleet, car dealer and independent service shops? . . . Why pay more for less? Find out how reasonably you can own the E-J Grinder set you need.

Mail the coupon below right now and, without the slightest obligation, we'll send you descriptive literature or give you a FREE demonstration of this new low-priced Grinder. Just indicate on the coupon whether you want literature, a demonstration, or both, and mail it to us today.

HALL ECCENTRIC VALVE SEAT GRINDER

MAIL THIS COUPON FOR FREE DEMONSTRATION OR LITERATURE!

Hall Manufacturing Co., 1620 Woodland Ave., Toledo, Ohio

I am interested in your New Model E-J Valve Seat Grinder and would appreciate . . . ☐ Descriptive Folder ☐ Free Demonstration

Name_____

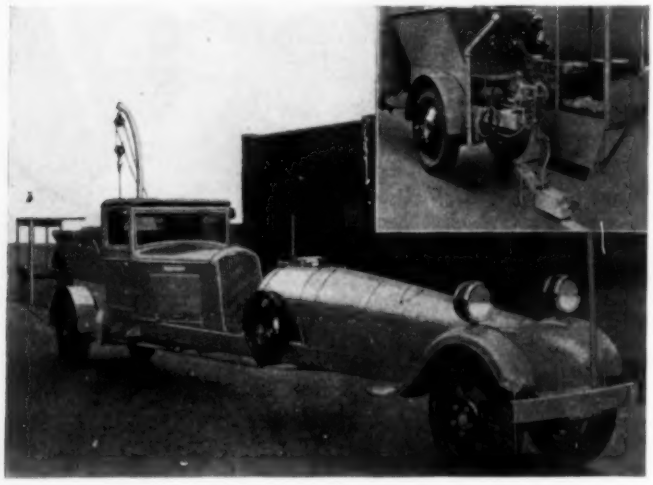
Address_____ City and State_____

My Jobber is_____

Strange Vehicle; Longest, Narrowest Ever Built

ONE of these days you may meet up with a brand-new motor vehicle like the one pictured here, lean, long and narrow, looking unlike anything you ever beheld in your travels over the country's highways.

As you pass the rear of the mysterious craft, you notice that it bristles with machinery and that the mid-section looks like a Dodge truck walking on its hind legs. At the very tail end, you see a little box drawn silently over the road surface, disgorging a yellow or white line stretching like a gigantic tape into the distance.



Now you begin to sense at least one of the various functions of this new traffic unit. It is a road marker. But it is also designed to pour asphalt on the shoulders of concrete roads and to scatter sand over the asphalted strip.

A fleet of machines of this uncommon type have been built for the State of Indiana through the combined facilities of Dodge Brothers Corporation and the White Manufacturing Company of Elkhart. The tread is only 36 inches, but the wheelbase attains the tremendous length of 288 inches. One of the reasons given for choosing the Dodge chassis is the fact that it proved suitable to the changes required to obtain the 36 in. tread and the 24-foot wheelbase.

Under the forward hood that looks like an airplane fuselage are a 20-gallon kerosene tank, the standard Dodge gasoline tank, a tool box and a 75-gallon asphalt tank. Back of the Dodge truck cab is a 165-gallon fuel tank for heating asphalt. At the rear of the frame is a small gasoline engine for driving an asphalt pump, and a compressor for supplying air pressure to kerosene burners and to the tank from which paint is forced to the paint spray box in the extreme rear.

The two masts are sights aiding the driver in maintaining the desired course. The vehicles are said to steer easily despite their great length. All the machines use the standard Dodge truck chassis as a nucleus.

●

Silver Fleet Nears 8,000,000 Mile Mark

SINCE the Silver Fleet of The B. F. Goodrich Company was formed, it has traveled nearly 8,000,000 miles in testing tires, it is announced by S. B. Robertson, vice president in charge of the Goodrich tire division.

Previous to organization of the Silver Fleet as its official tire testing group, millions of other miles had been traveled by Goodrich test cars, with the objective of constantly improving tire quality. The company claims to be the first in the industry to use automobiles for actual road tests of tires.

The original Silver Fleet was formed in January, 1929, when 14 cars and one truck left New York on a nation-wide tour. This ended on November 1, 1929, when the fleet returned to New York after having traveled a total of 451,680 tire miles.

Upon completion of this official tour, Goodrich test car drivers were put in uniform and the practice of painting test cars silver was continued until today the Silver Fleet is among the noteworthy organizations of its kind in the United States.

On September 1, of this year the distance covered by Silver Fleet cars had reached the total of 7,848,018 miles. The oldest test car driver from the standpoint of service is Louis Partsch, who has been driving a car in tire testing more than 12 years, in which time he has driven approximately 850,000 miles.

●

Safe Drivers in Cadillac's Truck Fleet

A CERTIFICATE of merit has been presented by the Detroit Industrial Safety Council to every driver in the Cadillac Motor Car Company's truck fleet for safe driving during the first six months of this year, according to W. H. Frater, personnel director.

This is the fifth consecutive year that Cadillac Motor Car Company drivers have rated high honors in the Industrial Safety Council's competition for accident-free driving on the highways. The awards are made semi-annually.

Cadillac joined the Council in 1929, and the fleet drivers won an honor certificate for the company during the first half of that year, and captured the P. W. A. Fitzsimmons trophy during the second half of the year. This trophy is awarded the fleet showing the greatest improvement in its fleet operating record. With a perfect score, the Cadillac men retained the trophy during the first period of 1930.

There has not been a major accident among the Cadillac fleet drivers since 1929, and since the beginning of last year no Cadillac truck has been involved in even a trivial accident, said Mr. Frater, who, prior to joining the Cadillac staff in 1926, was business manager of the National Safety Council.

This year's certificates of merit were presented to Russell Trongo, who has a record of six and a half years without a driving accident; Barney Petrie, Richard Krueger and John Fogarty, whose safety records cover the past five and a half years; and Charles Stafford, Charles Galetto, Robert A. Temeyer, Frederick Smith, Chester L. Virt, William H. Harris and Gordon L. Williams.

●

The President Urges Safer Driving

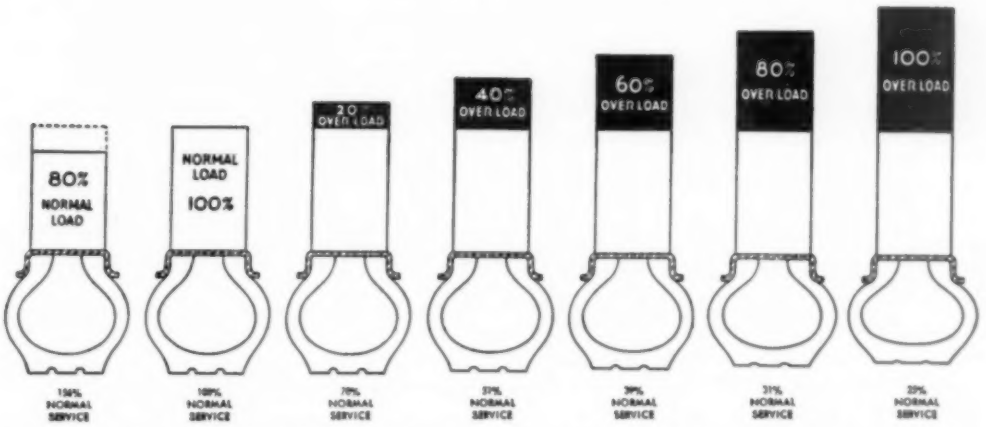
PRESIDENT ROOSEVELT has raised his voice in behalf of careful driving and safety on the highways.

In a letter to the annual convention of the American Automobile Association, the President said:

"I am deeply concerned over the staggering toll of deaths, injuries and heavy property damage caused by highway accidents. We cannot longer afford to temporize with this problem. Those who use the highways must realize the responsibility they assume when they take the wheel.

"Safer conditions for travel undoubtedly would contribute to a greater use of the highways, now that shorter working hours and more leisure time is assured by the National Recovery program."

If Truck Tires *Don't* Stand Up--Here's Why:



This load and service diagram illustrates the effect of overloading on the ultimate service of a pneumatic tire. For example, a tire will give 100 per cent or normal service if its rated carrying capacity is not exceeded. However if overloaded 20 per cent it will only give 70 per cent normal service, etc. The total mileage obtainable is dependent also upon other operating conditions, such as speed, road surfaces, braking, alignment, inflation, and proper repairs.

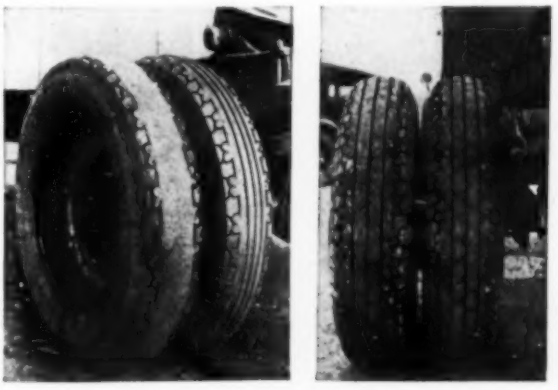
By Wilson C. Bray,

B. F. Goodrich Rubber Company, Akron, Ohio

EVERY man engaged in tire sales and service is often asked, "What are the principal causes of failure in truck tires?" There are, of course, a great many factors which result in a loss of service so far as tire performance is concerned. Analysis shows, however, that fully 85% of all truck tires which fail in service, break down as a result of concentrated flexing in the sidewall of the tire. This unnatural condition is brought about when the tire flexes to a greater degree than that found in normal operation. Excessive flexing occurs when the tire is carrying a greater load than is recommended for normal service, and also when the inflation is allowed to drop below the point recommended.

When a truck tire blows out, the difference between the mileage which the tire has delivered and the average mileage on all tires for the particular operation, does not always measure the entire loss. There are often certain more or less intangible losses such as those due to idle time, spoilage of cargo, lowered good-will, and many other losses which cannot be computed, but which nevertheless affect the profit picture of the entire operation.

It is a peculiarity of all truck tires that the service expected from them does not vary in direct relation to the load carried. Assuming that all conditions of operation are equal, a tire which carries 100% of its rated load may be expected to deliver 100% service. However, for every 10% increase in the amount of load carried on the tire, the reduction in service to be expected will be more than 10%. For example, a tire which is overloaded 20% may only be expected to deliver approximately 70% of its normal service. For other examples, consult the diagram at the top of this page.



Worn tires are smaller in outside diameter than new tires and should never be placed on the outside of a dual wheel with a new tire on the inside (see illustration on the left). To do so overloads the new tire, breaks down the fabric, and causes uneven tread wear. The more worn tire should always be placed on the inside. The illustration on the right shows both tires carrying an equal share of the load. Unequal inflation will bring about the same result as improper matching.

Not only does the amount of flexing have its effect upon the life of the tire, but also the rate at which the flexures occur. The average truck tire flexes about 300 times per minute at 30 miles per hour. A certain amount of heat is built up and stored in the tire each time it flexes. Rubber, being a poor conductor of heat, does not throw this heat off rapidly and at extremely high speeds, heat is developed at a faster rate than that at which it can be dissipated. As a result, the rubber disintegrates, causing separation between the cord plies and eventual tire failure. Thus, over-speeding, particularly when combined with overload or under-inflation is one of the principal causes of failure in truck tire operation.

Fortunately, there are a number of ways in which these failures may be reduced. It is not uncommon to find that the tires on an operation are of adequate size and proper type to carry the load, but the load is not distributed in such a way that all tires receive their equal share. Thus, some tires are considerably overloaded, while others are not carrying their full share.

It is not uncommon where dual tires are used to find that that the two tires which are

(*Please turn to page* 42)

Dry Cleaner's Fleet Good Advertising Medium

A FLEET of twenty-three attractively finished motor trucks is a very important adjunct to Gregg & Son, Inc., dry cleaners of Indianapolis, not only in speeding collections and deliveries, but also in serving as most valuable advertising mediums as they travel here, there, and almost everywhere in the city of Indianapolis. Thirteen of the more recently purchased units, which are Internationals, are shown in the accompanying illustration lined up in front of the firm's modern plant.

The concern, which is owned by the Progress Laundry Company, is the largest establishment of its kind in Indianapolis engaged solely in retail dry cleaning. The business was established thirty-six years ago by W. W. Gregg and C. F. Gregg, who began as merchant tailors. The Greggs sold the business to the Progress Laundry Company in 1928. R. C. Shaneberger is president, R. R. Burtis vice president, and L. D. Gutknecht secretary and treasurer.

The trucks are equipped with panel bodies, the upper parts of each being painted a striking goldenrod yellow while the lower parts and hoods are black. The name of the concern is attractively lettered in gold leaf with a black background on a special oval plaque 30 inches by 16 inches mounted on each side of the truck and beneath is lettered the slogan "Goodness Gracious Greggorize."

A regular schedule of night washing is maintained, and the trucks are so frequently washed that soap is very seldom required. Trucks are also repainted whenever necessary. As a result, the trucks are always spic and span in appearance and attract attention wherever they go.

The company operates nineteen routes, and the total daily travel is 1,100 miles, or an average of from 50 to 60 miles for each truck. The drivers work on a salary and commission basis. A route supervisor is employed who is continually instructing the drivers on selling, courtesy, and neatness. Drivers are not allowed to do any mechanical work on the trucks.

A garage 50 feet by 125 feet in size at the rear of the plant is provided for storing the delivery units when not in use. Maintenance work on the trucks is performed at the parent company's modern repair garage.

The Gregg & Son, Inc., plant is in a modernly constructed and equipped building 225 feet by 150 feet in size with an acre of floor space.

●

Says Operators Should Advertise "Safety"

MOTOR vehicle operators who fail to make capital of the safety features of their service in publicity and advertising material have neglected an important sales promotion feature, S. S. Greenberg of Maxwell-Davis, Inc., Hartford, Connecticut, told delegates to the Twenty-Third Annual Safety Congress and Exposition recently held.

"What would you think of a man who had two things to sell, one inseparable from the other, and only mentioned the lesser in his sales talk, and entirely ignored or inadequately mentioned the more important?" Mr. Greenberg asked. "Many operators are doing just that! Unless you are featuring that all-important phase of safety in riding in your buses and cabs, you, too, are doing it. If you furnish safe equipment, safe drivers who are reliably obedient to safety rules and regulations, you furnish protection to life and limb. It is solid, merchandisable capital brought out by safety promotion in your efforts."

Mr. Greenberg then said, "If you have not capitalized on your safety efforts, your record and your drivers' records, you are ignoring a sure-shot possibility that builds preference, prestige and adds to the income of your employees, as well as yourself."

The speaker said that he had found aggressive fleet operators advertise, "and the more aggressive they are, the more aggressive is their promotional effort along these lines, and the larger are their profits."

Mr. Greenberg cited the "staggering sum of $850,000,000," the economic loss through autocides in one year in this land—"a land apparently negligent of safe driving." Unless this deluge of waste is checked by safety education, he added, it will mount to at least the billion dollar mark. The speaker then indicated that the economic value of a human life could be used as a part of such a safety promotional campaign as he suggested, when he said, "I'm not touching on the features of safety to life and limb, but how many men are there who invest years of toil and study, as well as money, yet in the split second of carelessness, are robbed of their earning ability and incapacitated?"

●

Bus-Railways Put Into Operation

MOTOR buses which have many of the features of railroad trains but which operate more economically have been put in operation over the tracks of the St. Louis Southwestern Railroad between Dallas, Texas, and Jonesboro, Arkansas, a distance of 488 miles. Flanged wheels enable the buses to stay on the tracks.

An 80 horsepower gasoline motor is placed at both ends of the cars, which are capable of developing and sustaining a speed of 80 miles an hour with safety. Each bus has a capacity of 40 passengers, is air conditioned, and has entrance and exit doors at the sides. Drivers are given mental and physical examinations before being permitted to operate these cars.

●

4-Ton Truck in Georgia Pays $3,477 Taxes

TRUCKS more than pay their way in the state of Georgia, says the Georgia Motor Vehicle Association, in refuting charges that trucks do not pay for the roads they use.

Figures compiled by the Association from official state records show that the average annual tax on a one and one-half ton truck amounts to $1,628, and that on a four-ton truck with trailer, taxes amount to $3,477.50. These taxes are in addition to the ad valorem and state and federal income taxes which their owners pay.

The Association estimates the taxes on a one and one-half ton truck as follows: Mileage tax, $777.60; state gasoline tax, $699.84; federal gasoline tax, $116.64; federal oil tax, $6.60; state revenue department tag, $3; public service commission tag, $25. Total tax, $1,628.

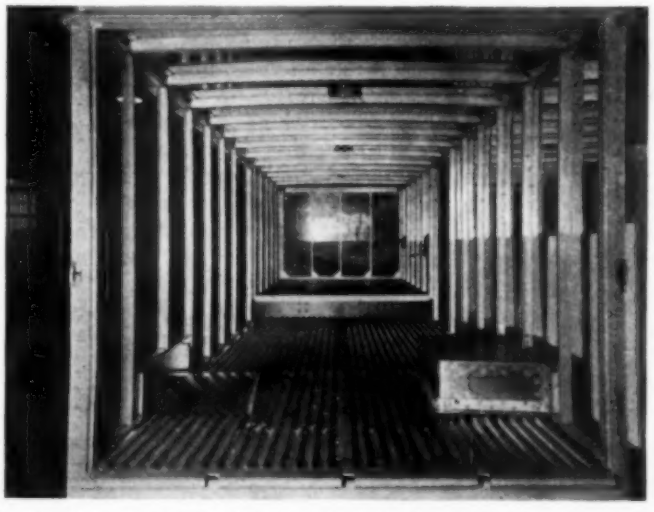
Taxes on a four-ton truck with trailer average as follows: Mileage tax, $1,676.70; federal and state gasoline and oil taxes, $1,744.80; state and public service commission tags, $56. Total, $3,477.50.

585 Cases of Beer Per Truck Per Trip

This semi-trailer is 28 feet long, and carries 16 tons of beer in cases, yet the entire unit stays under the 40,000-lb. limit because the trailer body has been built of aluminum.

ANY trucking concern which handles a large volume of brewing business would be delighted at the prospect of hauling 585 cases of beer per load—except that in escaping the economic waste of small loads, one runs into legal obstacles to large ones. Five hundred and eighty-five cases of beer weigh 32,000 lb., while the maximum gross load permitted by most states is 40,000 lb. This leaves only 8,000 lb. for the truck; yet Roemer Brothers Trucking Company, of Newark, N. J., contract haulers of Feigenspan Products, can haul 585 cases per trip and still stay within the limit.

By what seems a coincidence, they are enabled to do so through the use of a metal which has already served



Inside view of the partially completed body. Note the corrugated sub-floor which will be overlaid with tread plate, the extruded rear sill section with provision for tail gate hinges, and the wheel boxes of case height.

the brewing industry in many ways. Aluminum, from which barrels, tanks, vats and coils have been made, can be alloyed with small amounts of other metals and the resulting alloys have the strength of structural steel but weigh roughly one-third as much. Hence, aluminum alloys are used in truck bodies where weight must be reduced without sacrificing strength or safety.

Four aluminum semi-trailer bodies, 28 ft. long and 8 ft. wide, are used by Roemer Brothers for the long distance hauls of Feigenspan beer. These bodies, which were designed and built by Mack, weigh 3,840 lb. A body of equal size and similar design in wood and steel would weigh 4,660 lb. more and hence could not be loaded to capacity without exceeding the legal limit by that amount.

The entire body is of aluminum with the exception of a few minor clamps and hinges and the rear bumper. The sub-frame, side posts and roof bows are extruded shapes. The roof rail running around the top edge is a special extruded section which acts as a top sill and as a portion of the roof. It gives a rounded contour to the body and is finished off with rounded corner castings, in accordance with modern ideas of design. The all-aluminum floor is built up of corrugated sheet covered with tread plate and the side and roof panels are aluminum sheet. The side panels are protected from denting by inside slats running the length of the body. In cross-section these resemble a flanged U.

Since it is the custom to stack excess empty cases on the tailgate, the latter was framed of channel section and paneled with ¼-in. plate. For the same reason, the end doors extend the full height between the roof and floor, thereby preventing rearward shifting of the inside tiers while the tailgate is down.

It is interesting to note how every means has been taken to make the load compact yet accessible. For example, the fifth wheel must be on a higher level than the floor and so must the rear wheel houses if the body is to have a low center of gravity. Hence at these points the floor is raised exactly the height of one case so as not to disturb the orderly tiering of the cargo.

There are doors on the side as well as the end and as an ultimate refinement in efficient loading and unloading, a portable roller conveyor is kept in a compart-

(*Please turn to page* 42)

Another view of the partially completed body, showing compartment in the skirting for roller conveyor.

Hints on Analyzing Battery Troubles

(*A "How-to-Do-It" Article*)

THE ability to correctly diagnose battery troubles is one of the first essentials to the successful operation of a battery department in any fleet operation. To this end, the following suggestions should be of help.

Under most conditions, a battery which has been in service less than 90 days is under the manufacturer's guarantee and should not be opened. If it has been in service *longer*, it is advisable to inspect *all* cells, for even though only one cell shows defective, the condition which caused it to fail may have produced a similar condition in the other cells.

Internal Short Circuits—As a result of hard service, or because of age, active material leaves the plates and deposits itself at the base between two plates, causing a short circuit.

Then again, lead may have "treed" from one plate to another, through a wide split in a separator. Burning lead may have run down unnoticed during manufacture, eventually short-circuiting the element. Or, one or more plates may have "buckled" and cut through the separators.

If the plates are in good enough condition to warrant repairing the battery, this can be done by removing the cause of the short circuit and inserting new separators where necessary.

Inspecting Positive Plates—The following points should be considered when inspecting positive plates:

1. Is material firm and intact?
2. Is shedding of material finely divided and even over the surface of the plate?
3. Is the shedding chunky?
4. Is the outside frame of the grid cracked?
5. Does the grid show normal strength in resisting slight pressure, or does it crack and disintegrate?
6. Is the material very hard and metallic, with a light brown color?
7. Are one or more plates buckled? If buckled, can they be straightened without severe shattering of the material?

After considering each of the aforementioned points, compare them with the analysis which follows:

1. *Material Firm and Intact*—The fault is probably not in the plates—look elsewhere.

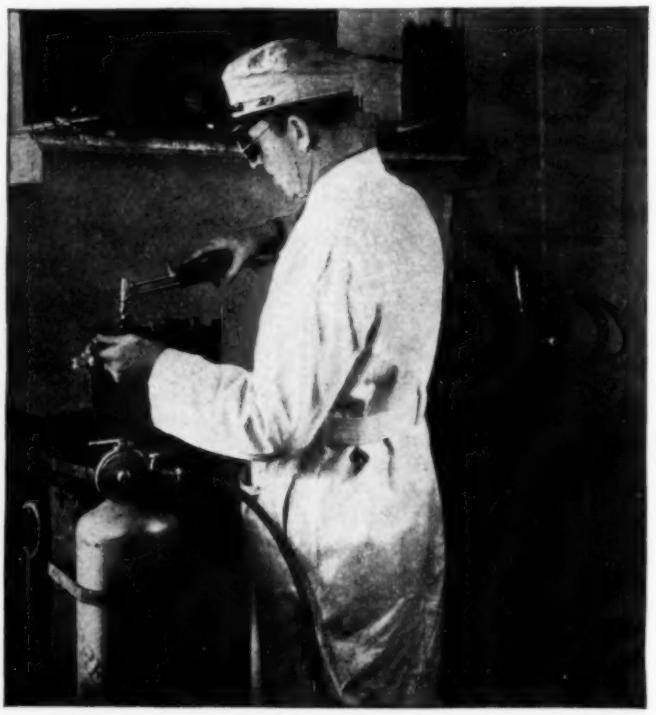
2. *Finely Divided Shedding*—Finely divided or even shedding over the entire surfaces is a characteristic result of long service, or of extremely heavy service for a shorter period, or of over-charging. If the plates are not too badly shedded, they can be put back in service. If the charging rate is too high, correct it.

3. *Chunky Shedding*—This is generally caused by subjecting a sulphated plate to too high a charging rate. It may also be caused by permitting a discharged battery to freeze. If caused by over-charging, it will probably be accompanied by oxidation of the plate frame.

4. *Cracked Outside Grid Frames*—This is the result of buckling, due to over-charging or severe expansion caused by allowing the plates to stand in a greatly under-charged condition until considerable hardening action has taken place. If the frame is badly broken, the broken plate must be replaced. A slight crack will cause no harm.

5. *Weakened Grid Structure*—Long, continued over-charging is always accompanied by oxidation of the grids, reducing the metallic section of the wires and weakening the plates. Such plates must be replaced and the charging rate reduced.

6. *Hard Plates*—Active material in the positive plate that is hard, light brown in color, and metallic, indicates heavy sulphation, caused by an internal short circuit or by a cracked container partition. If the upper parts are light brown, and if the lower part is the proper dark chocolate color, the battery no doubt has been operated with electrolyte below the top of the separators, due to the failure to add water. To remedy this, first eliminate the cause. The plates can usually be restored by a long, slow charge, from 60 to 100 hours at a four-ampere rate for a 13-plate battery. Slightly higher rates are required for larger batteries.



Lead-burning on battery connectors can be done easily with the acetylene-torch.

7. *Buckled Plates*—Buckled positive plates are caused by (a) operating a battery with excessive charging rate over a considerable period of time; (b) placing a sulphated battery in service, without first giving it a bench charge at the correct rate; (c) operating battery in service with the electrolyte level well below tops of plates; (d) subjecting a battery which has become sulphated to a prolonged period of charging at a high rate, as on a long trip.

Very often a slightly

Blind Data

Advertising buyers never see what they buy—they're just TOLD about it.

What they want is a certain number of readers of a certain specified character. A publisher SAYS he has them. That's all.

That's all unless—unless a publisher provides a recognized independent audit report on his circulation such as furnished by ABC for "paid" media and CCA for "controlled" media.

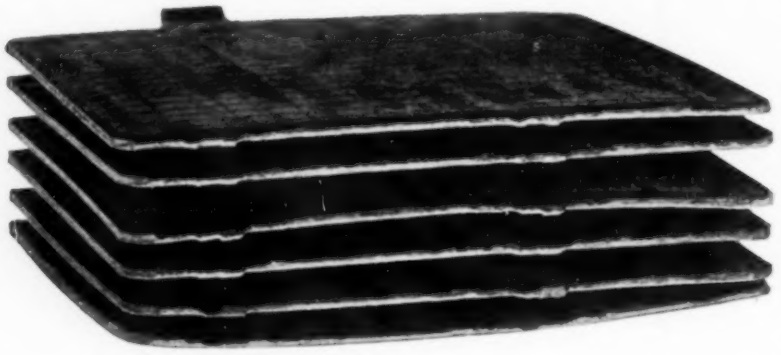
Honesty pervades most business. However, in a business where the article sold cannot be actually shown but can only be pictured, isn't the buyer entitled at least to an unbiased and scientific description? "Entitled"? He should DEMAND it.

CORRECT DIAGNOSIS IS ESSENTIAL (*Continued*)

buckled plate can be straightened by careful use of pressboards. However, any active material which may be loosened during the straightening will become useless. Cutting a notch in the bottom center of the outside frame of a badly buckled plate before reinsulating will sometimes save it.

Inspecting Negative Plates—Here are the conditions to look for when inspecting negative plates:

1. Is the material firm or soft?
2. Does it gloss when rubbed with the back of the thumbnail?
3. Is it blistered?
4. Is it discolored?
5. Is it sandy?
6. Has any of the material washed out of the grid?



Buckled positive plates are caused by (a) operating a battery with an excessive charge rate over a considerable period of time; (b) placing a sulphated battery in service, without first giving it a bench charge at the correct rate; (c) operating a battery in service with the electrolyte level well below the tops of the plates; (d) subjecting a battery which has become sulphated to a prolonged period of charging at a high rate, as on a long trip.

1. *Soft Negative Material* — This may occur from operating the battery with high gravity acid at excessively high temperatures due to high charge rate.

2. *Glossy Negative Material*—Negative material which glosses when rubbed with the thumbnail is in its proper state of sponge lead, fully charged. If it has become slightly puffed from heavy service and cycling it may possibly be pressed back into the grid while fully charged by the use of pressboard.

3. *Blistering* — Blistering should not be confused with the normal expansion of negative active material.

4. *Discoloration*—A grayish white discoloration is sulphation, resulting from low electrolyte level, or from standing in a partly charged condition. A reddish-brown discoloration may be produced by excessive corrosion at terminal post falling into vent openings. This seriously impairs battery performance.

5. *Sandy Negative Material*—Bring the plates to a fully charged condition. If, after charging for at least 24 hours and until the gravity stops rising (it may take 80 hours), the sandy feeling does not disappear, the plate should be considered worthless.

Loss of active material from the negative plates results from high acid or from excessive heat, due to continuous charging at an excessive rate.

6. *Loss of Active Material*—Loss of active material from the negative plates results from high acid or from excessive heat due to continuous charging at an excessive rate.

Inspecting Separators—The points to consider when inspecting separators are:

1. Is the wood firm and normal in color?
2. Is it soft and darkened?
3. Is it worn?
4. Is it pitted?
5. Are separators frayed at the bottom?
6. Are they notched where they rested on the bridges?
7. Are there any splits or holes?

1. *Firm and Normal Color*—Separators in this condition do not need to be replaced.

2. *Soft, Darkened Separators*—caused by prolonged high temperature (above 110° F.); high specific gravity acid (1.300 or above); or a combination of both. These conditions usually turn the separator very dark, almost black and charred.

3. *Worn Separators* — Worn separators, with ribs almost destroyed, are most frequently caused by the excessive pressure exerted by buckled plates. If caused by excessive temperatures or high specific gravity acid, they will be much darker than when the cause is pressure.

4. *Pitted Separators* — If caused by oxidation by contact with positive active material, the pitting starts on the ribbed side of the separator and shows dark, almost black, carbonized spots. If due to blistering of negative plates, there is practically no discoloration and pitting starts on the smooth side of separator.

5. *Frayed at Bottom*—Due to excessive shedding, full sediment spaces and continued use, causing oxidation of lower wood portions.

6. *Notched at Bottom*—Notches where separators rest on bridges indicate that the battery has been loosely installed in the car, with resulting severe vibration, or that element has been loose in cell compartment. If loose installation, the container will show abrasion from contact with carrier supports. If container does not show such abrasion, the assumption is that the element was too loose in the cell.

7. *Split Separators*—Tiny cracks do not impair performance. Those with open splits must be replaced.

(Editor's Note:—This article comes to us through the courtesy of The Presto-O-Lite Battery Company, Indianapolis, Ind., whose battery engineers have prepared it. It was written originally in the interests of the company's battery service stations and dealers, but there are many good hints in it that should appeal to those fleet operators having their own battery service departments. We suggest that you turn this article over to your own battery man.)—H. C. F.

as WE GO to PRESS

(News of the Truck Industry)

Marmon-Herrington Has Big Year

BOTH the domestic and export business of the Marmon-Herrington Company, all-wheel-drive truck manufacturers, has been unusually active during 1933 and the year as a whole is by far the largest in the Company's history, according to A. W. Herrington, president. Recent orders for all-wheel-drive truck equipment have been received from Arizona, New York, California, Hawaii, Nevada, Ohio and Montana, as well as from numerous other states and countries. The outlook for the immediate future is excellent, officials say.

•

Specializes on Oil-Engined Trucks

THE distinction of being the first truck manufacturer to specialize exclusively on Diesel-engined trucks is claimed by Clyde Motor Products, Inc., Clyde, Ohio. According to a factory announcement, the first production run will include a number that have been already sold to fleet operators in Ohio and Michigan. Clyde Motor Products, Inc., is a separate organization, organized in 1932 and occupying factory space and utilizing machinery in the plant of the Clydesdale Motor Truck Company. A. C. Burch is president.

•

Orders Four More Diesel Engines

AN order has recently been received for four Model HA Cummins Diesel automotive engines to replace gasoline engines in the trucks of Purity Stores, Ltd., San Francisco, Calif. This firm now operates eight Diesel-equipped units and the ones just ordered will make the total twelve, simple addition tells us. This interesting information comes from A. E. LeBlanc, sales manager, Cummins Engine Company, Columbus, Ind.

•

New Series E. P. L. by Houghton

A SERIES of transmission lubricants possessing extreme pressure characteristics and having high film strength, is announced by E. F. Houghton & Co., Philadelphia, Pa. These E. P. Lubricants are claimed to exceed the maximum limits set by motor car makers, who today are advocating lubricants with extreme pressure characteristics for transmissions and rear axles. The Houghton product is called "Vital Transmission E.P.L." and is stated to contain no soap or foreign fillers, and not to foam, expand or increase in volume.

Newark Truck Show Huge Success

CHARACTERIZED as the "biggest and best" truck exhibition held in the vicinity of New York City within the last ten years, the Commercial Vehicle Show, held under the joint auspices of the New Jersey Motor Truck Association and the S.A.E., at the Armory, Newark, N. J., proved to be a huge success. The latest models of the leading truck makers were exhibited, as well as the new Diesel engines, accessories and transportation specialties. Because of the current discussions at the S.A.E. Transportation Meeting on the subject of Diesels, this type of engine came in for a goodly share of attention at the Show, which ran November 8, 9 and 10.

•

Pretz Named Production Manager

THE appointment of Christian Pretz as general production manager of the Studebaker truck division was recently announced. The new post gives Mr. Pretz the direction of engineering, purchasing and manufacturing of Studebaker trucks. Mr. Pretz has been in continuous service with Studebaker for 22 years.

•

Called "Ultra-Modern" Unit

THE above truck and trailer combination, recently placed in service by Pacific Fruit & Produce Co., distributors in Seattle, Wash., is called an "ultra-modern" unit, by its makers. The truck is a GMC T-61 with set-back front axle and 110 h.p. valve-in-head engine. The other half of this matched unit is a GMC four-wheel trailer, equipped with booster brakes and auxiliary springs. Bodies on both truck and trailer were built by Peter Wendell, of Seattle, Wash.

•

Cole Named Executive Engineer

THE appointment of R. E. Cole as executive engineer in charge of Studebaker truck design was announced recently by D. G. Roos, Chief Engineer. The announcement closely follows the appointment of Christian Pretz as manager of truck production. Mr. Cole has previously been chief engineer for such firms as Dodge, Durant and Rockne.

Kingham Trailer in New Quarters

COMPLETED some three months ago, the new plant of the Kingham Trailer Company, Inc., Louisville, Ky., is now fully occupied. It is a modern, day-light factory with a floor space of 80,000 sq. ft. Offices and show-rooms are under one roof. The new plant is equipped with the latest type of machinery for the construction of wood and steel bodies, as well as trailers of all types. When next in Louisville, you are cordially invited to drop in. The address is 15th and Hill Streets.

•

New Coal Trailer by Fruehauf

WITH the dump body operating on a direct-drive through the fifth-wheel, a new coal delivery trailer, designed by the Fruehauf Trailer Company, Detroit, Mich., hauls 8-ton loads behind a light 1½-ton tractor. The tractor can be coupled to an ordinary trailer as well, it is stated, since the new "power" fifth-wheel is interchangeable with all standard types. The dumping operation and working parts have been made as simple as possible, but there is not sufficient space here to describe it in detail. If interested, write for data to the above firm. We promise you'll find it mighty interesting.

•

Tax Reduction Defeated in Mich.

BY a decisive vote, Michigan defeated the constitutional amendment that would have reduced the state gas tax from 3c to 2c per gallon. When the proposal to reduce the gas tax was first advocated, it won support. However, when it was learned that the plan would reduce road funds by $7,000,000 a year, and that virtually no highway construction could be carried on with state funds, a reverse current of public opinion set in.

•

IAA Convention at Pittsburgh

THE 35th Annual Convention of the International Acetylene Association was held last month at the William Penn Hotel in Pittsburgh. Interesting papers were read, covering the latest developments in the welding and cutting industry. Hard-surfacing came in for its share of attention as a recent development. A transportation session was held, which included a treatise on "Construction of Transportation Vehicles by Welding." We understand that copies of this may be obtained from International Acetylene Association, 30 E. 42nd St., New York City.

QUESTION *of the* MONTH

"By far, one of the most valuable departments to be found in any automotive publication. Every fleet man should be delighted to cooperate."—A Reader

Some of the Interesting Replies to the Tube Repairing Questionnaire (No. 49):

Fuel-In-Patch Jobs Serve Well in this Fleet

"NO record is kept as to the amount of tire punctures in our fleet. However, we repair our own inner tubes by the hot-patch method, which we believe to be the best, as we have had some cold-patches come loose, and a vulcanized patch makes a permanent repair.

"The average cost of such a repair is from 20c to 25c when the fuel-in-patch type of repair is made. The life of tubes in our service ranges from 3 to 5 years.

"We have not had sufficient experience with puncture-sealing tubes. So far, they have eliminated repairs. A cold-patch is now being marketed that looks to be very good. However, we have not yet tried this particular type."—*Geo. A. Hogg, Supt., Scranton Electric Co., Scranton, Pa., operating a fleet of 30 trucks, 52 passenger cars and 18 trailers.*

●

Cold-Patches for Small Holes; Hot for Large

"SOME of our tube repair work is farmed-out; some of it is done in our own shop. Both hot and cold-patches are used. We only have about two punctures per month; the cost of repairing same is not over 50c.

"As to which method is best, we believe it depends upon the size of the hole in the tube. Small holes may be cold-patched and they will *hold*. Large holes should be hot-vulcanized. No hot or cold-patches have come loose in our service. As stated above, we use a cold-patch made by any reliable rubber company, for small holes, and have no trouble whatever.

"The approximate life of a tube in our service is about two years. We do not use puncture-sealing tubes, as they heat the casing and cause premature breaks in the fabric or cords."—*Ralph Spitler, Mgr., Dayton & Northern Utilities, Inc., West Milton, Ohio.*

●

Hot-Patches Successful on 95% of Repairs

"INNER tubes are repaired in our own shop. We have about 50 punctures per month, which are repaired by the hot-patch method, which we believe is best, as it is rapid, economical and sure. No hot-patches have come loose in service.

"We have complete tire and tube vulcanizing equipment in our tire department, but have found Shaler hot-patches to handle satisfactorily about 95% of our work. The average cost per tube repair is from 10c to 15c, depending on the time taken for changing. The approximate life of a tube in our service is about 55,000 miles on buses.

"We found that our delays due to punctured tubes were insufficient in number to offset the increased cost of puncture-sealing tubes; also due to the thicker and heavier construction of this type of tube, there is a tendency towards poor riding qualities, which is an important factor in bus operation."—*S. D. McMurray, Asst. Gen. Mgr., White Star Bus Line, Inc., Hato Rey, Puerto Rico.*

●

Puncture-Sealing Tubes Effect Big Saving

"A FEW puncture-sealing tubes are used in our fleet, on bad territories and we have effected a big saving thereby. We had one territory which would average 2 punctures a week, and these were completely eliminated by using puncture-sealing tubes.

"We do not repair our own tubes of the regular type, but farm-out this work. On this type of tube we have about three punctures per month. The hot-patch method is used, which we believe to be most satisfactory. Average cost of repair, complete, is about 75c. Tubes of this type last about three or four years in our service."—*J. D. Zerbo, Cost Accountant, Strietmann Biscuit Co., Cincinnati, Ohio, operating a fleet of 33 trucks.*

●

Puncture-Sealers Save Time; Eliminate Spares

"WE are using puncture-sealing tubes and find that they cut down lost time and also repair costs. Total repairs on 12 trucks (56 tires) for ten months only amounted to eight.

"With the exception of passenger cars, none of our equipment has spare tires. Our tire company keeps a repaired tube in stock for each of our sizes and when a tire runs flat our driver telephones to them, and they bring a spare tube to the spot and make the change, bringing the punctured one back for repair. This plan works very well, and we get immediate service as our maximum radius of operation is only 8 miles.

"Therefore, we do not repair our own inner tubes, as this work is done by the tire company. The hot-patch method is used and none have come loose in service. We believe that this method is the best.

"The average complete cost of a tube repair is 50c and if a trip is required, the cost is 50c additional. The life of tubes is about two years. Air-containers last about five years."—*Dwight H. Woods, Eng. Asst., Nashville Gas & Heating Co., Nashville, Tenn., operating a fleet of 19 trucks and 10 passenger cars.*

MORE REPLIES *to the* TUBE REPAIRING QUESTION

Interesting Tube Experience of U. P. S.

"PUNCTURES on tubes of the standard type are repaired in our own shop, using the cold-patch method, which we believe to have no disadvantages. We have about ten punctures per month on this type of tube. None of these cold patches have come loose and we believe that either the hot-patch or cold-patch method would be satisfactory.

"Although we have some electric tube vulcanizers, we have not used them for 2 or 3 years, using 'Seal-Fast' patches instead. The cost of such a tube repair runs according to the size of the tire and the difficulty in dismounting and mounting. It ranges from 50c to $3.00 for the *complete* operation. Such tubes last about three years in our service.

"We are also using puncture-sealing tubes and what few failures we have are taken care of by the manufacturer. These eliminate punctures and save much driver time. It is not possible to accurately estimate the effects of these tubes on our operating costs. But we believe that they save us money as we now carry no spares and seldom have a tire failure on our fleet of trucks in New York City."—*W. D. Bixby, Manager of Motor Equipment, United Parcel Service, New York City, operating a fleet of 840 trucks.*

Uses Both Types of Tube Patches With Success

"WE are now repairing our own inner tubes, although some of this work has been farmed-out in the past. We have from five to thirty (average fifteen) punctures per month. Hot-patches are used on large tires and cold-patches are used on passenger car and small truck tires. Neither of these types of patches have been troublesome, to our knowledge.

"Although we are not sure, we believe that the hot-patch method is safer. For hot-patches we use the Shaler clamp-type of vulcanizer, using fuel-in-patch equipment. When we farmed-out this work, it cost us about 25c each for a tube repair. Our own cost, in our shop, amounts to under 10c each. A tube in our service outlives two tires, and is generally good for 40,000 to 50,000 miles.

"We are not absolutely sure that hot-patches are really necessary. From a safety standpoint, we use them entirely on large sizes, as the rubber of the cold-patches is so much thinner than the tube, and we would not want to have a weak spot in large truck tubes. We have never tried puncture-sealing tubes, as we believe the extra cost would not justify them."—*H. G. MacLeod, Asst. Truck Supt., Colonial Beacon Oil Co., Everett, Mass., operating a fleet of 140 trucks 10 trailers and 10 passenger cars.*

(Please tear out and mail to The Editor, The Fleet Owner, 90 West St., New York City)

Question No. 51—Spring Maintenance

Do you make your own spring repairs?..... Or, is this work farmed-out?.....

If farmed out, please indicate below which TYPE of concern does your spring maintenance work.

☐ Vehicle Dealer; ☐ Vehicle Mfr.; ☐ Spring Mfr.; ☐ Spring Specialist; ☐ Jobber; Others .....

If you do your own spring work, please indicate below, your source of supply on replacement springs.

☐ Vehicle Dealer; ☐ Vehicle Mfr.; ☐ Spring Mfr.; ☐ Spring Specialist; ☐ Jobber; Others .....

Do you carry a stock of replacement springs?..... Rebuilt springs? ..... Spring leaves?.....

How frequently do you check up for tightness and proper adjustment of spring parts?.....

How frequently do you lubricate springs?..... What method and lubricant is used?.....

.....

Do you favor the use of graphite between spring leaves?..... Or, "Oilite" discs? .....

Do you use "helper" or overload springs?..... Or, do you prefer to add extra leaves?.....

When a new main or middle leaf is installed, do you have the other leaves re-arched?.....

When springs show signs of lost-tension, do you have them re-arched or replace with new?.....

On what basis do you decide whether to purchase a new spring or repair the old one?.....

.....

Is your spring practice the same for passenger cars as for trucks and buses? .....

Do you insist upon any particular special spring steel specification? .....

Do you use spring covers? ..... What type of spring shackle has proven best?.....

What is your opinion of independent wheel suspension? (Knee-action, etc.) .....

Note: If you cooperate with us and fill out this questionnaire, you will be entitled to a tabulated report covering all of the answers.

Swap your Maintenance experience with other fleet operators in this easy, convenient way. We do the work. You get the benefit.

Name of Firm .....

Address .....

City and State .....

Your name ..... *Position*.....

The TROUBLE SHOOTER

A department, devoted to correspondence from readers of FLEET OWNER. Any questions having to do with automotive service will be answered in this department. All properly signed inquiries will be replied to by mail and such of them as are believed to be of possible interest to other readers will be published in these columns.

Inside Storage Is More Economical

Question: Is there any definite data available to prove whether keeping cars out in the open, instead of in a closed garage, is harmful to the motors? We would like to have this information regardless of the economic question involved. It is of course always desirable to store cars inside when possible, from many angles, but will it do any positive harm to keep cars out of doors continuously for long periods at a time?—M. K., College Point, N. Y.

Answer: We note that you ask if this will be harmful to the *motors* and we would like to answer your question specifically, but we cannot resist the temptation to discuss the damage which will be incurred to the *finish* and general deterioration of the entire vehicle, if left outside.

First of all, we do not believe there is any actual data available on this subject. If there is, we should like to hear of it. We believe that the actual harm done to the *motors* will be negligible; even in your locality, where there is considerable salt-moisture in the atmosphere, due to the proximity of Long Island Sound.

Of course, all parts of units that do not operate constantly in a bath of oil will suffer; particularly the "innards" of distributor, generator starting motor and other electrical units. However, if these parts are coated with a light grease or oil at frequent intervals, we do not believe they will suffer very much.

You understand, of course, that the *finish* of these vehicles will depreciate very rapidly. Paint and plating will not stand up very long and portions of the body and chassis where paint has been worn off will soon acquire a nice coating of rust. Where the air is "salty," the damage will be so much the worse.

We presume that you will use anti-freeze in the winter and that you will use one of the new "W" motor oils. In spite of this, you will be bound to experience harder starting, summer or winter, because of the moisture and the temperature. Warm-up will take longer and more gas will be used.

Internally, we do not believe any harm will befall the motors, as all working parts will be protected by an oil film, especially if the vehicles are operated daily. And, since most motors are quite conveniently "protected" with an accumulation of oil, grease and dust, there should be little depreciation on the outside of the motors. However, we believe that inside storage will be more economical, in the long run.

●

20-W and 10-W Oils Defined

Question: Some time ago I read an article in your publication on the subject of 10-W and 20-W oils, in which the advisability of using these oils for summer and winter operation was stressed by a fleet operator. Will you please explain how these oils differ from the regular S.A.E. 10 and S.A.E. 20, or are they the same thing? Whose numbers are these?—I.R., New York, N. Y.

Answer: No, these oil classifications are *not* the same. The S.A.E. crankcase oil viscosity numbers provide for the classification of the lower viscosity oils at 130° F., and the higher viscosity oils at 210° F.

The new 10-W and 20-W classifications have been designated in accordance with their viscosity at 0° F. We understand that although these new numbers have originated as a result of an S.A.E. committee, consisting of oil engineers and automotive engineers, the Society has not yet officially adopted them as regular S.A.E. standards. Therefore it would be incorrect to refer to them as S.A.E. 10-W, or S.A.E. 20-W

According to our knowledge, most of the oil companies are now furnishing 10-W and 20-W oils. In some cases these oils are so marked; in others, the S.A.E. 10 and S.A.E. 20 oils come within the classification limits of 10-W and 20-W, and these may be sold as either.

You May Not Believe It!

(But Here It Is)

THE CLAIM:

It has been an accepted theory for many years that cylinders wear "out-of-round." It may be somewhat of a surprise to learn that cylinders tend to wear "round" much more than they tend to wear "out-of-round."

THE REASONS:

THE answer to this startling claim is that cylinders are measured for out-of-roundness when they are COLD, at which time the cylinder is the same temperature throughout. If the same cylinders were measured at OPERATING temperatures, they would be substantially round, according to a very interesting article appearing in the October issue of a piston ring maker's house organ. It is further stated that piston rings actually round-out a cylinder that is distorted by heat, by rotating on the pistons and wearing off any high spots that expansion may place against them. Quite interesting.

TROUBLE SHOOTERS' DEPARTMENT (*Continued*)

Free-Wheeling at Low Cost

Question: I would like to know if an auxiliary set of gears for free-wheeling can be installed in a 1929 model Buick coupe? If so, where could these gears be purchased and at what cost for both the gears and installation?—A. M., Iron Mountain, Mich.

Answer: We do not quite understand what you mean by "free-wheeling gears." If you want to get free-wheeling, this can most easily be accomplished by installing an automatic clutch control unit, such as is made by Bendix. This will give free-wheeling by automatically releasing and engaging the clutch according to accelerator-pedal movement. No gears, to our knowledge, are available for installation in the transmission of this car to provide free-wheeling.

●

The Heater Does Not Heat

Question: We have installed a hot-water heater on one of our salesmen's cars, a 1929 Plymouth, but seem to have no results worthy of mention. Please advise whether or not a heater of this type can be used on this car and if so, what the proper hook-up should be.—G. E. M., St. Paul, Minn.

Answer: Make sure that the top of the heater is at least 3 inches below the water level in the radiator. On this type of cooling system the heater should be vented more frequently than on cars with circulating pumps.

The heater should be installed so that the hose lines are as short as possible, also as direct as possible, and without humps in the hose, to assist the natural flow of hot water upward from the cylinder head (heat indicator fitting) to the top of the heater. The water will then filter down through the heater, traveling out from the bottom of the heater to the lower hose connection at the radiator.

It is important that the top of the car heater should be at least three inches below the top of the water level in the radiator. In no case should a loop or hump in the hose extend above the top of the heater, as air pockets would form in this loop and retard the circulation.

In installing hot water heaters on cars *with* water pumps, opinions seem to differ as to whether the hot water should enter the heater from the top, or from the bottom. Both methods are used, as the pump has sufficient force to cause the hot water to travel upward in the heater. In a system *without* a pump, however, the hot water *must* enter the heater at the top.

●

Join Hands in Fight on Monoxide

CAMPAIGNS from four different points of the compass are getting under way to cut this year's toll of needless deaths from carbon monoxide gas poisoning. Insurance companies, governmental motor vehicle bureaus, automobile clubs and a prominent oil company are directing their safety efforts to overcome this motoring peril.

Drivers everywhere are being warned of the dangers of running motors in closed garages. The approach of cold weather always brings an increase in the number of items creeping into the news columns concerning deaths or serious asphyxiations from this careless practice. In addition, it is pointed out that highway researches conducted by engineers of the Cities Service Oil Company during the year definitely disclosed that monoxide gas from faulty adjusted motors made its way into the interior of cars on the road and endangered occupants by its effect on drivers.

To combat this hazard, drivers are advised to make sure a window of their cars is always open, and to keep their motors in accurate adjustment so that a minimum of the harmful gas will be generated.

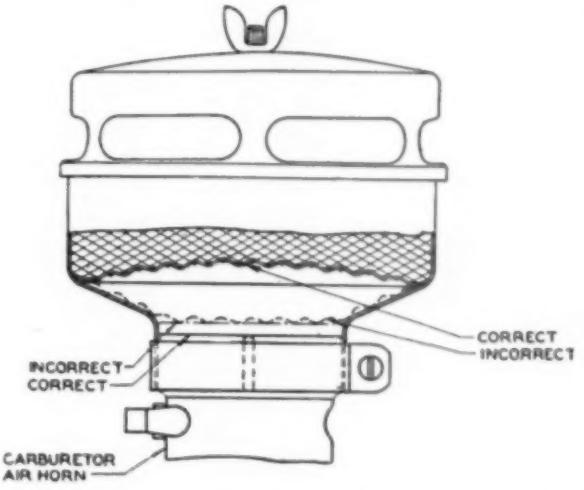
The oil company engaged in the campaign is utilizing the Cities Service Power Prover—a machine which takes 30 seconds to reveal the percentage of carbon monoxide gas being expelled from a motor.

●

Air Cleaner Hint for Chevrolet Trucks

A FEW complaints have been received, states *Chevrolet Service News*, regarding loss of power and poor gasoline economy on 1934 Chevrolet trucks.

Investigation has proven this to be caused by the screen and copper mesh in the air cleaner being pushed down toward the air intake on the carburetor, and improper installation of the air cleaner on the carburetor.



To correct this condition, remove the air cleaner from the carburetor, and push the heavy wire screen up with the thumbs so that it will be in a convex position. This will allow the proper amount of air to enter the carburetor.

Another point to check is the position of the air cleaner on the carburetor air horn. It is possible to set the air cleaner too far down on the air horn, which will also cause some restriction.

●

Weather Information on Roads Proposed

INTERMEDIATE wave radio receivers at filling stations and other points along highways to obtain weather information for motorists have been suggested by the Bureau of Air Commerce.

Every hour from the 68 airways-broadcast stations scattered throughout the United States along the Federal Airways System, weather reports are sent out on the air to assist flyers, and small receiving sets with a range of from 200 to 400 kilocycles could make this information available to motorists.

This would be of particular importance in the more rugged and mountainous sections of the country where a fog may mean delay, a heavy rain a washout, and a snowstorm an impassible section of roadway.

THINK OF IT!

ALL material listed on this page has been personally selected and is recommended by your Editor. Executives of automotive fleets may obtain any or all of them by marking the numbers on the coupon below. You have our assurance that this will not obligate you in any way. And, when we say that this material is hand-picked, we mean . . .

HAND-PICKED!

201. **Truck Tire Calculator.** If you enjoyed using the spark-plug slide-rule that we offered in this department last month, we know you'll get just as much "kick" out of using the latest in slide-rules—a "Truck Tire Calculator" especially designed to help you choose the correct TYPE (not make) of tires for 1½-ton trucks on different wheelbases. This one is equally easy to use—easier than operating the zipper on your wife's galoshes. If you'd like to reduce your truck operating costs by the correct SIZING of tires for the load carried, this slide-rule will help you. It's free, of course. Number 201 on our coupon brings you one at once. And you don't have to be an engineer to use it, either. First come, first served.

•

202. **Electrical Connectors Faulty?** If you are having trouble with electrical connections between tractors and trailers, you'll surely find lots of interesting dope in some literature on the subject that we've recently picked up. Many operators have told us of their grief in keeping rear and marker lights burning, all because some types of connectors did not stand up in service. Some operators have even spent a lot of time and money in making-up connectors of their own. So-o-o, somebody went ahead and proceeded to take care of this demand. The result is a line of replacement connectors designed to "keep the lights burning." Number 202 on the coupon brings an interesting folder describing the whole works. It's free, if you want it. Mark down the number, please.

•

203. **Precautions and Safe Practices.** A good title for a medical book, but this one is *not* such stuff. It's an interesting 24-page book that gives a lot of good advice in the storage, care and handling of oxy-acetylene welding and cutting equipment. If there are any boys in your shop who use the oxygen tank for operating pneumatic tools, for blowing-out pipe lines or for starting engines, be sure to place a copy of this book in their hands. Besides helping to materially reduce your welding and cutting costs, it may be the means of keeping down shop accidents, saving lives and cutting down insurance premiums. Number 203 on our coupon will bring you a *free* copy of this valuable publication.

•

204. **Dope on Diesels.** The recent S.A.E. Transportation Meeting brought out the almost unanimous opinion that Diesels "have arrived." So it is only fitting and proper that we include a free publication in this department, treating with this important subject. A 48-page book entitled "The Mechanical Principles of Cummins Diesel Engines" is the first free work that has come to our attention. It's written in such plain language that even *we* can understand it. To keep abreast of important Deisel developments in this country is our duty and yours. We'll see that you get a copy of this book, if you but indicate your desire with Number 204 on our coupon. No obligation, of course, now or at any time.

•

205. **Every Turn a Good Turn.** When we gave you some good advice on direction-signaling equipment in our October issue, little did we think that this subject would bring back such a positive reaction. One large oil company is quoted as saying: "We never looked at it from that angle before." We were immediately besieged with requests for further information on all types of indicating-signals now on the market; this to such an extent, that we considered it advisable to include such literature in this department. If you would like to receive a complete prospectus of the savings made possible by turn-signalling equipment, how they work, what they cost and other interesting facts, just include Number 205 on the coupon below. The literature will come to you postpaid, free of all cost, and will *not* be followed up by salesmen, unless you so specify.

•

206. **How to Clean Parts.** This is one of the slickest parts cleaning apparatus that we have ever seen. You may be surprised to learn that it does *not* use caustic soda solutions, lye, water or any of the usual trademarked stuff so prevalent in our industry. Neither does it use steam, hot water or pressure. Another advantage is that you don't need an engineer to install it, or the fire underwriters to approve it. And it doesn't use gasoline or any inflammable liquids. If your patience is exhausted trying to guess what it is, we'll be glad to have the manufacturers send you a free circular. Just ask for Number 206.

•

207. **Modern Valve-Seat Servicing.** Our recent Question-of-the-Month survey revealed the interesting fact that fleet men in general are still looking for ways and means of doing a better job when it comes to refinishing the new type valve-seats. While it is true that these do not require such frequent servicing as cast-iron seats, it is also true that this work is a bit more difficult. But several manufacturers have developed tools to properly handle them. One of them (the one which advertises with us, of course) offers a set of interesting folders, which also cover cylinder reconditioning, cylinder ridge-removing, pin-hole honing, etc. Number 207 brings a set of these folders, free, gratis and for nothing.

•

208. **No Monkey Business Here.** If you have been "monkeying around" with tire chains in previous years, you'll welcome a circular that illustrates, describes and prices the well-known "Monkey Links" for making *permanent* repairs to cross-chains *without* tools. Frankly, there's not much in the way of educational matter in the circular, but to make up for this, you will receive, in addition, a sample set of these links, in five sizes, one of each. This is truly a case of "something for nothing." To get it, just include Number 208 on the coupon. We'll do the rest.

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209. **Bearing Service Manual.** Here's a good book, written in our own language, containing 56 pages of information regarding main and connecting-rod bearing fitting. Typical chapters are: Different Types of Bearings Used; How to Fit Bearings; Causes of Bearing and Rod Failures; Causes of High Oil Consumption; The Crankshaft and its Relation to Bearing Performance. Need we say more? The book is free, and the edition is limited, we understand. Number 209 on the coupon brings *your* copy; that is, if there are any of them left when we get your coupon.

The Editor, FLEET OWNER, ...1934
90 West St., New York, N. Y.

Kindly send me without cost or obligation the following literature mentioned in the December issue. (Order by number)

....

....

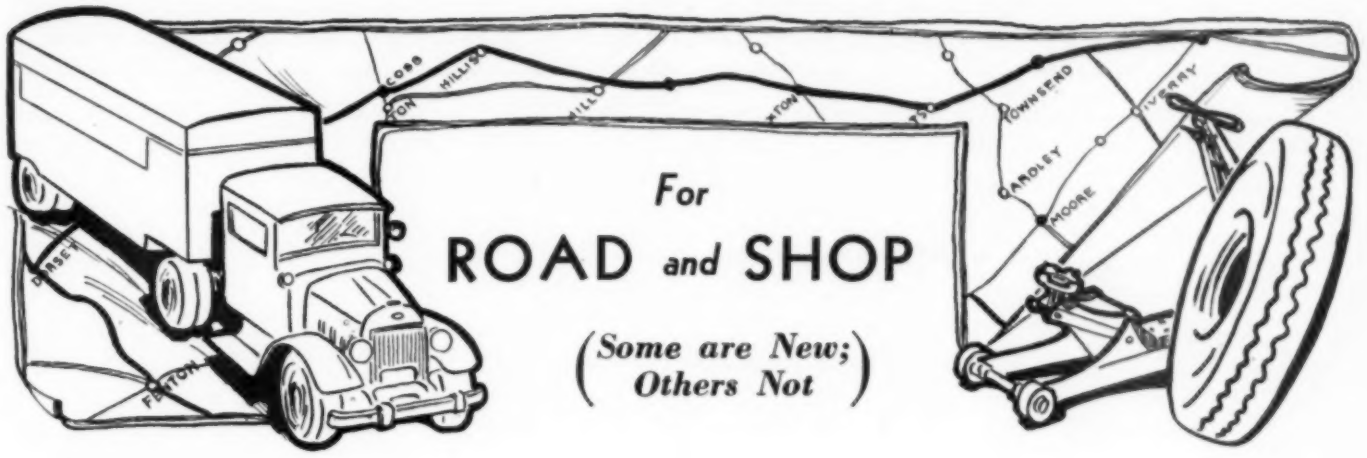
Name of Fleet .....

Address .....

City and State .....

Your Name ..... Position .....

Number of Vehicles Operated .....



New Weed Chain Catalog

THE 1934-35 catalog on Weed Tire Chains and accessories has just been issued in the popular handy pocket size. It features Weed American Bar-Reinforced Tire Chains

both for passenger cars and for trucks and buses. In its 24 pages there are illustrations and descriptions of the numerous other automotive necessities in the complete Weed line.

For a free copy of the catalog address—American Chain Company, Inc., Sales Promotion Department, Bridgeport, Connecticut.

●

Testing Welders and Their Welds

ANYONE concerned with the hiring of welders will be interested in the recent publication by The Linde Air Products Company, 30 East 42nd Street, New York, N. Y., of a 24-page illustrated booklet entitled "The Testing and Qualification of Welders." The purpose of this booklet is to outline simple tests for measuring the ability of welders, the first of the six essential steps in every procedure control for oxy-acetylene welding.

It is pointed out that welding technique differs somewhat with the materials to be welded and with the type of joint used, so that it cannot be assumed that a man who can weld excellent joints in aircraft tubing can also do as well in 20-in. steel pipe.

Separate sections of the book discuss in detail the fracture test, the bend test, the tensile test, and the observation test. To round out the booklet, a summary of existing and pending qualification tests for welding steel plate and pipe are given.

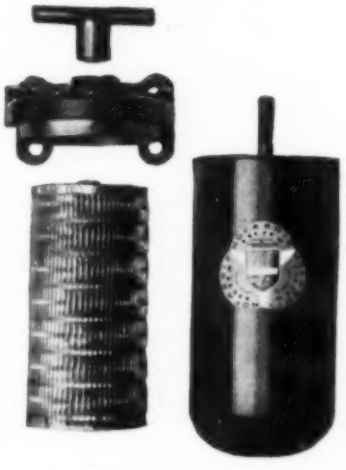
●

Heavy-Duty "Nofabrix" Filter

A NEW member of the Cuno "Nofabrix" oil-filter family is announced for replacement by Cuno Engineering Company, Meriden, Conn. It is a heavy-duty type, illustrated here, designed for truck and bus service.

To eliminate vibration, a cast-iron head is used, with provision for four mounting bolts. A single steel bolt, welded to the bottom of the sump, passes through this head casting and threads into a Tee-handle, holding the sump and head together.

The inner cartridge, made of mineral wool, is replaced by simply unscrewing this Tee-handle, the entire operation being done in a few min-



utes and without tools, the makers state. Inlet and outlet connections are in the head casting and are not disturbed when renewing the cartridge.

A special relief valve is incorporated in the head casting, which operates under a differential pressure of 15 lbs. The manufacturers point out that this filter uses the well-known filtering element of mineral wool, which neutralizes crankcase acidity and removes foreign material at the same time. They will be glad to send full details if you address them as above and mention this publication.

Medium-Heavy Truck by White

A NEW medium heavy-duty truck, adaptable for general hauling purposes is announced by The White Company, Cleveland, Ohio., designated as Model 718. This job combines high load-carrying capacity with a medium-sized economical power-plant. It has a gross rating of 20,000 lbs., with a range of wheelbases from that of a tractor of 130 inches, by increased steps of 18 inches up to 190 inches. The engine is a six-cylinder L-head type with a piston displacement of 303 cu. in., developing 90 h. p. at 2800 r. p. m. Other typical White features are found throughout.

●

New Mill Supply Catalog

THE latest catalog of Greene, Tweed & Co., manufacturers of mill supplies and contractor's specialties, has just been issued.

This includes the well-known brands of packings—Palmetto, Palco, Cutno, Pelro, Runwel, Klero and Manhattan. The new model Favorite reversible ratchet wrench is also shown, as is the Basa soft-faced hammer, with adjustable rawhide, copper and babbitt faces; also the Empire line of rawhide mallets.

This catalog will also include the Rochester automatic force-feed lubricators, belt fasteners, walrus and other polishing leathers, as well as much useful engineering information.

For your free copy of this new 64-page catalog, address Greene, Tweed & Co., 109 Duane St., New York City. Mention of FLEET OWNER will be appreciated.

NEW STUFF *for* ROAD *and* SHOP (*Continued*)

Self-Closing Tire-Repair Links

ILLUSTRATED here is the well-known "Monkey Link" which is recommended by the maker for quick repairs to all types of tire chains.

All you have to do is slip one of these links in place of the broken link, and drive on. The first turn of the wheel closes the link, due to the weight of the vehicle.

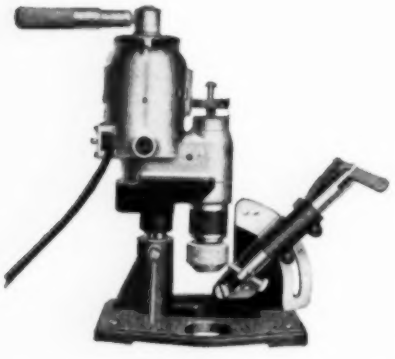
These links are available in five sizes and they cost but a few cents each. Samples are now being distributed to fleet operators. If you would like to get one link of each size, write to Flower City Specialty Company, 250 Mill St., Rochester, N. Y. They will be glad to accommodate you, without obligation, if you mention this publication.

•

Low-Priced Eccentric Grinder

ONE of the most interesting shop equipment exhibits at the recent Automotive Service Industries Show, was that of the Hall Manufacturing Company. And one of the products shown there for the first time, was the low-priced, *eccentric* valve-seat grinder, illustrated here.

This new Model E-J Grinder is identical in principle with production and service grinders made and sold by Hall during the past three years, and it provides a most satisfactory tool, at a low price, for grinding valve-seats of Stellite, high-speed steel, or cast iron, up to 2½" in diameter.



Revolving at 10,000 r. p. m., the grinding wheel of this grinder travels *eccentrically* around the valve-seat at 30 r. p. m., producing a perfectly ground seat with the accuracy and speed of larger and more expensive models, the makers state. It comes complete with diamond dresser and will handle any type of valve seat. For details, price, etc., address Hall Mfg. Co., 1620 Woodland Ave., Toledo, Ohio. You'll mention FLEET OWNER, won't you?

Pedrick Deep-Channel Oil Ring

IN the new Deep-Channel Pedrick oil-control piston ring, announced by Wilkening Manufacturing Co., Philadelphia, it is claimed that far better oil control, less carbon clogging and vastly longer life result from the shape and depth of the continuous channel and the use of drilled *round* holes for drainage.

The side walls of the continuous channel are undercut so that, as wear takes place, the face area of the ring is reduced, thus tending to maintain the unit pressure against the cylinder wall and compensating for loss of tension caused by wear. This feature more than doubles the effective life of the ring, according to the maker.

The shape of the channel is such that sharp acute-angled scraping edges are provided to cut into the oil film on both the up and down strokes of the piston. Furthermore, the "V" groove shape of the channel creates constant turbulence in the oil, preventing carbon accumulation and delaying clogging, it is claimed.

Surplus oil can be collected from the cylinder wall very quickly, due to the extra depth and capacity of the continuous channel.

Round holes, spaced closely and evenly around the ring, are drilled without distorting the shape of the ring and permit the Deep-Channel ring to be made perfectly flat on both sides. Also, the diameter of the round holes exceeds the width of slots that would be used in rings of the same size. Round holes, therefore, require longer to become clogged with carbon, it is declared.

•

Improvement in Aluminum Pistons

THE latest step in the evolution of the aluminum alloy piston is Alumiliting—a process which forms a hard, smooth aluminum oxide surface as an integral part of the piston. This surface has fine bearing qualities and materially increases the resistance of the piston to scuffing. The life of a piston thus treated is substantially lengthened while cylinder wall wear is reduced, it is claimed.

The performance of aluminum pistons in the past few years has been greatly improved by two outstanding developments of Aluminum Company of America: the invention of an alloy known to the trade as Lo-Ex; and that of the T-slot piston design, in which the vertical slot does not extend to the bottom of the skirt and in which several other valuable features are embodied. The Lo-Ex alloy, combined with the T-slot design, results in a piston which is claimed to be rigid, yet cylinder-conforming, lighter, more conductive to heat, and consumes less oil.

The engineers next directed their efforts toward developing a harder piston surface, resulting in the Alumilite process. The Lo-Ex aluminum alloy pistons are electrically treated in large tanks; the equipment resembles that used for electroplating. Machining and grinding are done before treatment and the thickness of the Alumilite finish can be controlled uniformly and within close limits. The oxide surface is made out of the metal and is not a layer of material deposited on the surface. This accounts for the tenacity with which it adheres to the piston surface and explains why there is little change in diameter during the treating process.

The Alumilite finish has the hardness and smoothness of a fine bearing surface, it is claimed. In addition, it contains innumerable invisible surface cavities which absorb oil and the importance of this, when the engine is first started, is recognized. The hardness of the Alumilited surface is of material benefit in reducing ring-groove wear and in maintaining piston pin bore diameters within their original limits. Unusual protection against scuffing is obtained. Pistons with the Alumilite finish are available for replacement in many makes of automobile engines.

•

Dupont Color Mixing Set

"DUCO" distributors are now offering to the trade a complete mixing set, known as du Pont Calibrated Mixing Cups. This consists of eight calibrated cups with dipper handles, ranging from one-sixteenth of an ounce to eight ounces; a paddle and a brush, all mounted on a convenient rack.

The du Pont Company supplies refinishers with Duco Tinting Colors so that they can make up their own tints to match the colors of any car, and the new mixing set is expected to make it easy for a refinisher to match quickly any desired color scheme.

NEW STUFF *for* ROAD *and* SHOP (*Continued*)

New G-E Tungar Battery Chargers

TWO new battery chargers with racks, one a 3-battery and the other a 6-battery Tungar, for small- and medium-sized fleets, have been announced by General Electric's Merchandise Department, Bridgeport, Conn.

Both chargers, identical except for the number of batteries that each will charge, require but two square feet of floor space. Each has a welded steel frame that is strong and rigid, two steel shelves equipped with flexible acid-proof rubber trays, a heavily-built, trouble-free transformer, an ammeter for registering the rate of charge, and an "on" and "off" switch incorporated with the current-control dial switch. A 10-ampere fuse protects the Tungar bulb and the batteries. All connections are furnished.

These new chargers with racks are compact and economical. They provide complete battery-charging installations, low in both first cost and operating cost—the 3-battery Tungar being particularly well-suited for the small shop or fleet service station.

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Mallory Model R Distributor

THIS new distributor is available for most all cars, trucks and buses. Some of its features include moisture-proof cap; new wipe-contact distributor cap and rotor; vacuum control; ease of installation; etc.

The Mallory principle of overlapping circuit breakers is used in this model, which increases contact-dwell, permits coil to properly energize and eliminates the need for synchronization of points, according to the makers.

A governor is incorporated therein, said to be frictionless and the distributor itself is stationary, without necessity of advance or retard by manual effort.

Further information concerning this and other ignition equipment is contained in a book entitled "*Facts About Ignition.*" M. Mallory is the author and you can obtain a free copy by writing to him, care of Mallory Electric Corporation, Vancouver Ave., Detroit, Mich.

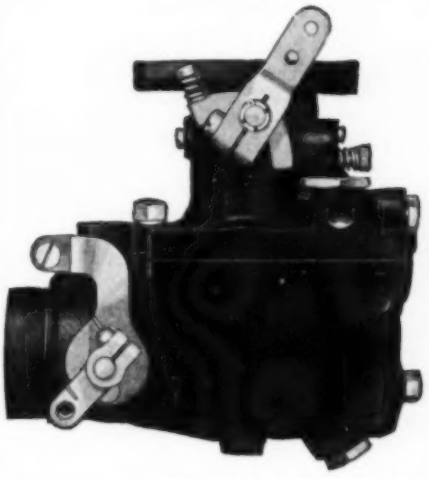
●

Stromberg SF Heavy-Duty Job

BENDIX presents a specially designed carburetor for heavy-duty service on trucks, tractors, and buses, in their model SF carburetor, illustrated here.

The carburetor as illustrated embodies all the leading features of the world-known Stromberg Carburetor, and represents a development of nearly a quarter century carburetor building.

The carburetor comes in five sizes, 1" to 2". It is equipped with Stromberg accelerating pump and vacuum



economizer. The carburetor can be applied to any vehicle having a manifold opening within the size of the five types Bendix has to offer. Bendix distributors and dealers in all cities and towns of any importance sell and service this carburetor.

For further information and prices address Bendix Products Corporation, 401 Bendix Drive, South Bend, Ind. Mention of FLEET OWNER will be appreciated by them and by us.

●

Plug Cleaning Repair Kit

INTRODUCTION of a spark plug cleaner repair kit containing small parts for use in servicing the AC cleaner is announced by AC Spark Plug Company, Flint, Mich.

The announcement says further that arrangements have been completed for the more than 800 authorized AC service stations to give complete repair service on AC cleaners. This is an added service to operators who wish to avail themselves of it, although most operators themselves can quickly take care of the small replacements.

Improved Pedrick Piston Expander

EXPERIENCE in the field has developed a substantial improvement in the Pedrick Piston Skirt Expander and Stabilizer, announced by the Wilkening Manufacturing Co., Philadelphia, Pa.

The new expander is curved and formed from flat Swedish spring steel. Lugs are provided at each bend in the spring and these lugs engage the groove which is milled in each side of the piston slot, holding the expander in place and preventing it from touching the cylinder wall. These lugs carry none of the expansion force, which is all carried directly by the flat surface of the spring.

No change has been made in the effective principle on which the expander works nor in the method of installing. Expansion is applied the full length of the skirt and with equal radial force outward. The piston skirt is restored to its correct size. Piston "flutter" is stopped. Practically no weight is added to the piston so no balance is upset. *One size fits all pistons.*

The Pedrick Piston Skirt Expander is offered with absolute assurance against breakage. The list price is 40 cents for each expander, and with every box of 48 expanders, 4 special milling cutters for grooving the piston slot are included without extra cost. One size of this one-piece expander will fit all pistons.

●

"Pull-Type" Tire Regroover

THIS is a new tire-regroover of the electric hot-knife type, that is operated like a draw-knife.

The makers tell us that it is fast and efficient, and that it can be used for making circular grooves, or for following the original, or any other tread design.

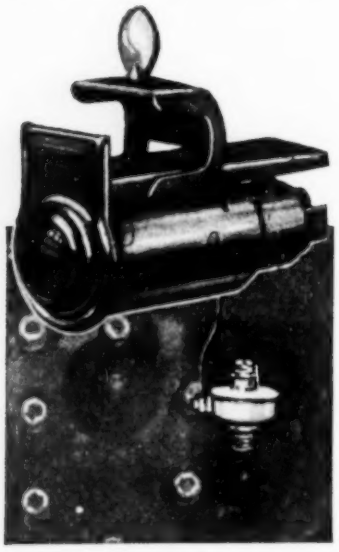
The subject of tire-regrooving has been discussed in this publication from time to time, and the manufacturers would appreciate your correspondence on the subject.

Who makes it? Just write to Bailey & Company, 219 No. 63rd St., Philadelphia, Pa., and an interesting circular and price list will be sent without obligation. You'll mention FLEET OWNER, won't you?

NEW STUFF *for* ROAD *and* SHOP (*Continued*)

Klemm Automatic Oil Signal

THE Klemm Automotive Products Company of Chicago, Ill., announce the Tell-Tale Flasher, automatic oil signal, for all cars, buses and trucks.



The assembly, which is apparently a very simple installation, consists of a signal light attached to the instrument panel and a small compact control unit that is installed at the oil pump body or (in the case of the Ford) replaces the oil-test plug. A wire connects these two and another wire runs from the signal light to the cutout.

According to the manufacturer, the light on the dash flashes its warning signal when the oil reaches a predetermined safety level, when the oil becomes dangerously thin, or if the pump fails. The signal will not flash when rounding curves, on grades, or upon coming to a quick stop.

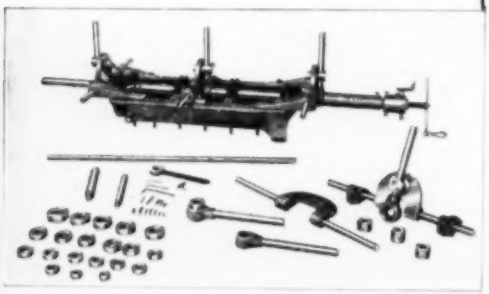
Further details and prices may be obtained by writing to Klemm Automotive Products Co., 2531 N. Ashland Ave., Chicago, Ill.

•

Ryco Line-Boring Machine

THIS main bearing boring outfit is designed for great accuracy, ease of setting up and simple operation. It is equipped with single-point cutters that can be sharpened with an ordinary emery-wheel, the makers state. Cutters are equipped with special micrometer adjustment and cutter size can be determined at any time by means of an ordinary micrometer.

According to the manufacturer, this machine is easily and quickly attached to the crankcase and can be used for boring camshaft bearings as well as main bearings.



Three speeds are provided in the gear box which give cutting feeds of 30, 50 and 100 cuts per inch. Hand feed for facing and filleting is also included. The machine has capacity for bearings from 1¼" to 4" in diameter and any length can be bored without addition.

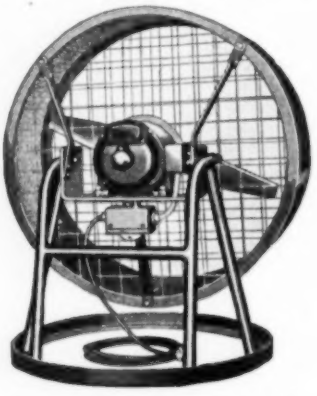
This unit, listed as No. 888, Ryco Line Boring Outfit, may be operated by hand or power. Made by Ryco, Inc., Ltd., 375 Twenty-sixth Street, Oakland, Calif.

•

New Line of Ventilating Fans

A COMPLETE line of ventilating fans for garages has been announced by The Bendix Products Corporation of South Bend, Ind. A duct system of ventilation for engine exhausts is also included in this new group of products.

The group of fans supplies every need. There are wall fans, ceiling fans, floor fans and fans for duct systems. One of the "leaders" in the line is the Bendix Floor Level "Aerospot." The blast from this fan is effective at a distance of 60 feet for the E-1 model and at a distance of 90 feet for the E-2 model. When this fan is installed on the floor, its blast covers a width of 45 feet for the E-1 and a width of 60 feet for the E-2. The direction of the blast can be adjusted



from horizontal to vertical. The fan is portable, but can be mounted on the ceiling or side walls. The E-1 unit can be operated five and three-quarter hours on one kilowatt hour and the E-2 model can be operated over three hours on one kilowatt hour, the makers state.

"Less than one-half of one per cent of carbon monoxide can be fatal to the average person," stated Frank B. Willis, sales manager of The Bendix Products Corporation. "The average automobile engine can produce from 4 to 50 cubic feet of carbon monoxide a minute. Thus it is easily seen that every garage and service station where motors are tested and repaired should be equipped with some efficient ventilating system."

According to Mr. Willis, Bendix fans deliver air with uniform velocity at all radii, are so skillfully designed that no power is lost through eddies, and are durable and economical. The supports for the motors offer virtually no resistance to air flow. All motors are totally enclosed. Blades are of drop forged aluminum alloy. Intake rings and motor supports are of rolled steel.

•

New AC Super Reflex Signals

A NEW shatterproof series of reflex signals in red, green, amber and white, developed specially for buses, trucks and trailers of all types and to meet the most rigid legal requirements of all states, is announced by the AC Spark Plug Company, Flint, Mich. The new reflectors are a companion line to the regular AC reflex signals.

The lens is silver plated on the back to assure maximum visibility and reflection. The silver is protected by a copper plating and a sprayed coat of aluminum lacquer.

The case into which the reflector is fitted is filled with asphalt. This prevents shattering should the lens be broken, and preserves the reflecting characteristics of the signal even though the lens should be badly fractured. The asphalt also protects the silvered surface against water or moisture condensation.

The new signals are known as the AC Super reflex. Particulars may be obtained from AC Spark Plug Company, Flint, Mich. You'll mention FLEET OWNER, if you write, won't you?

•

Free Bearing Service Manual

KNOWING the need of the service man for information regarding bearings and connecting rods, Federal-Mogul Corporation is offering a 56-page book on this subject.

This book was written by L. C. Blomstrom, chief engineer of the Federal-Mogul Corporation, who has been closely identified with the automotive industry almost from its inception, and has spent much of this time on bearings and their problems.

Some of the subjects covered in this book are, "The different types of bearings used," "How to fit bearings," "Causes of bearing and rod failures," "Causes of high oil consumption," and "The crankshaft and its relation to bearing performance."

The edition is limited, and all requests should be on a business letterhead or bill-head. Write for your copy direct to Federal-Mogul Corporation, 4809 John R Street, Detroit, Michigan. Mention of FLEET OWNER will serve to identify your request.

READER SAY-SO

(Picked at Random from The Editor's Mail-Bag)

Thanks, Mr. Biggs!

"DEAR Mr. Fischer: For your information, we receive FLEET OWNER every month, and want to compliment you on the articles which are contained therein, as we find them very valuable in answering questions which we run into in the field, which questions are sometimes outside of our own line . . . If there is any particular question which our experience may place us in a position to answer for you, we would be glad to cooperate in any way possible."—*Francis L. Biggs, Hampden Sales Corporation, Springfield, Mass.*

●

Can Use "Commandments"

"DEAR Mr. Fischer: We are interested in your Simplified Truck Cost System as described in your September FLEET OWNER. We would also like to know if we can receive, reprint or purchase the 'Ten Commandments for Truck Drivers' also appearing in your September issue. We operate a fleet of 12 trucks."—*Leo J. Pfohl, President, Junction Coal & Coke Co., Pittsburgh,* Pa.

(EDITOR'S NOTE: *The "Ten Commandments" were prepared by Ted V. Rodgers, President of the Pennsylvania Motor Truck Association, at Harrisburg. Why not drop him a line? We feel sure that he will consent to your using this valuable material.—H. C. F.*)

●

Who Else Wants 'Em?

"DEAR Editor: I am a reader of your publication, FLEET OWNER, and have found it very valuable. I would appreciate very much if you would have sent to us a sample of the Preventive Maintenance Forms No. 325 and 326; also a set of safety posters such as were featured with the recent article, 'How to Reduce Fleet Accidents.' Thanking you in advance, I am . . . "—*H. B. Schultz, President, Red Top Company, Inc., Ft. Wayne, Indiana.*

Re Graphitic Lubrication

"TO the Editor: Enclosed is coupon requesting literature No. 193 as indicated on page 38 of the September issue of FLEET OWNER. We have read your articles on the subject of Graphited Lubricants and are very much interested.'—*P. M. Pashby, Supt. of Maintenance, St. Joseph County Road Commission, Centerville, Mich.*

●

Advocates Direction Signals

"DEAR Mr. Fischer: I was very much interested in Mr. Rodgers' 'Ten Commandments for Truck Drivers' which appeared in your September issue, and everyone must admit that the ten are all good, but one is lacking . . . Picture in your mind a wide truck on a 4-lane highway intending to make a right corner turn. If the street he turns into is narrow, his truck must first swing to the left, cutting in on line number 3, and then must swing back to the right, crossing the outside line number 4. This may happen on highways where the full speed allowed by law is being traveled by others . . . On the other hand, if this same vehicle is equipped with a turn-signalling device, which is switched on 200 feet or more before starting the turn, every movement of this truck will be clearly understood by other vehicles, and they will give way for the turn . . . There is no question but that a turn signalling device removes one of the most serious prejudices against trucks on our highways."—*H. O. Smith, 400 E. Rittenhouse St., Philadelphia, Pa.*

●

Short and Sweet

"WE should like to obtain four of the free literature booklets listed on page 40 of the August issue. We operate a fleet of 35 cars and enjoy the publication FLEET OWNER very much. Thank you."—*A. L. Davis, Sales Manager, Castor Bros., Frankford, Philadelphia, Pa.*

"Very Comprehensive Status"

"TO the Editor: There is an excellent article in your September issue of FLEET OWNER on page 37 entitled 'Facts About Piston Rings and Inner Rings.' We would greatly appreciate running a copy of this article in our bulletin, if we could obtain your permission to do so.

"We wish to congratulate you upon building up FLEET OWNER to its present very comprehensive status, and consider it a publication very much needed and extremely helpful to fleet operators of all types."—*J. J. Bigge, Sales Manager, Panyard Piston Ring Co., Muskegon, Mich.*

●

Why Not Try It?

"DEAR Mr. Fischer: Your articles on Synthetic Enamels which have appeared in FLEET OWNER have interested me greatly. You've made the matter so plain and make it appear so simple that I've a notion to attempt refinishing my own car—both for economy and for the sport of it."—*J. H. Sheehan, Technical Service Dept., South Bend Lathe Works, South Bend, Ind.*

(EDITOR'S NOTE: *Should you attempt this, be sure to do the work in a room that is as dust-proof as possible. Make sure that the finish is free from wax, oils or greases, wet-sand it down very well and use a good brush. We see no reason why your job should not be satisfactory.—H. C. F.*)

●

Seeks Buying Information

"TO the Editor: I would appreciate it very much if you would send me information regarding manufacturers of oil filtering machines. I am interested in having one installed at our plant, and would like to have this information as soon as possible. Thanking you for your prompt attention . . ."—*Herbert G. Jahncke, Jahncke Service, Inc., New Orleans, La.*

THE NATION'S STRENGTH IS THE NATION'S HEALTH

The greatest threat to the nation's health is tuberculosis. It is the chief killer of men in industry between the ages of 15 and 45—20,000 men in this group alone die of it every year. No one is safe from the disease until every case has been found and placed under treatment. Help protect yourself and your family by using Christmas Seals on your holiday letters and packages. The funds they provide finance a program of prevention, discovery, and treatment of tuberculosis throughout the entire year.

The NATIONAL, STATE, *and* LOCAL TUBERCULOSIS ASSOCIATIONS
of the UNITED STATES

BUY CHRISTMAS SEALS

Say "I saw it in FLEET OWNER"—It Helps!

Cost Accounting in the Fleet

(*Continued from page* 11)

general books of the company and does not appear in the Automobile Record.

Taxes and Registration Fees: Taxes and registration fees are also carried in general books of the company and do not appear in the Automobile Record.

Administrative Overhead: The fleet does not bear any charge for administrative overhead. Expenses that might be included under this heading are: a portion of the salaries of circulation and assistant business managers; a part of the accounting division expense; and a portion of the salary of the assistant business manager's stenographer, who makes out purchase orders.

Mileage Records: At the end of each month an odometer reading is taken of each vehicle by the repairmen, and recorded in a mileage book in the accounting department. At present, there are five trucks with speedometers not in working order; the garage foreman makes assumptions based on previous mileage readings, which are used as the mileage records for these trucks. The elapsed mileage for each truck is calculated at the end of the year, for use in deriving cost-per-mile figures.

Statistical Data: At the end of each year, cost-per-mile figures are compiled for each vehicle, and for the fleet as a whole. These figures cover the cost per mile of gas, oil, repairs, tires, rent, labor, and the total operating cost comprising the foregoing items.

No figures are compiled to indicate the miles per gallon of gas or per quart of oil. (EDITOR'S NOTE: The Driver's Weekly Report form, shown on page 16 of our October issue, is a *proposed* form, more about which will be said in the next installment of this article. Through an error, it was stated that this form is now being used by Combined Publishing Company, which is *not* correct.)

Advantages: The only advantage of the present cost-accounting system just described, is that a minimum amount of clerical labor is involved.

Disadvantages: The disadvantages, obviously, are quite numerous; let us list them as follows:

1. All fleet expenditures are not included in the Automobile Records.
2. Original-equipment tires are not listed in the Tire account; therefore the operating cost figures for the year are inaccurate.
3. Total tire costs are recorded at the time of tire application; thus the operating record may show a high tire cost for one period and no tire cost at all for the succeeding period or periods. The tire cost-per-mile figure is also inaccurate.
4. An accurate tire inventory is not kept, and no provision is made for the correct charge in the case of tires being transferred from one car to another.
5. The absence of tire life records makes it difficult to determine the cases (and causes) of premature tire wear.
6. The cost of painting new trucks is entered under the repair record. The author deems it advisable to add this cost to the initial investment.
7. Outside labor is entered under the repair record.
8. Too many miscellaneous items are entered in the repair column.
9. The total labor cost is divided equally among all cars. This results in new cars bearing an untrue labor cost; and vehicles covering a low yearly mileage carry the same labor charge as trucks on high mileage

YOU'LL LOSE

—every time you idle your motors to prevent freeze-up

YOU'LL EARN

with EVEREADY PRESTONE in the cooling system

"A penny saved is a penny earned" EVEREADY PRESTONE will . . .

SAVE engine wear

An idling motor runs at a low temperature—runs "cold". Tests made by the Institution of Automotive Engineers show an increase of 22% in wear on cylinders and piston rings when motor is operating at low idling temperature! They also say, "It can be concluded . . . that organic acids do not cause any corrosion at high cylinder temperatures" and "The accelerated wear at low temperature has been shown to be very largely due to corrosion." By protecting the engine against freezing with Eveready Prestone, thereby eliminating the need for idling motors, the owner can greatly reduce the amount of corrosion and wear in cylinders and piston rings. An important saving in engine life.

SAVE oil

The U. S. Bureau of Standards has pointed out that crankcase oil dilution may jump from 5% in Summer to 50% in Winter. Truck and bus manufacturers charge much of this increase to idling motors. With Eveready Prestone in the cooling system it isn't necessary to idle motors to prevent freeze-up.

SAVE gasoline

An idling motor consumes fuel which must be charged against the cost of Winter operation, and an idling motor consumes an *excess* amount of fuel, for the engine is running at a low temperature. Check the cost of the gasoline wasted against the low cost of permanent Eveready Prestone protection!

SAVE time

The old saying, "time is money," is certainly true in the trucking business. If the trucks aren't rolling, you aren't "making." One hold-up because of a frozen radiator costs you plenty more than a shot of guaranteed Eveready Prestone.

REMEMBER... "a penny saved is a penny earned."

And Eveready Prestone can EARN plenty for you this Winter!

NATIONAL CARBON CO., INC., General Offices: New York, N. Y.
Unit of Union Carbide UCC *and Carbon Corporation*

One fifth of every gasoline dollar

..up in smoke

UNLESS the exhaust gas is periodically checked, tremendous gasoline waste may be suffered before the inefficient operation of a motor is noted. Here is a rugged and compact instrument which will accurately and continuously indicate completeness of combustion. Simply insert the hose fitting into the tail pipe and the instrument shows instantly the air-fuel ratio and percentage completeness of combustion. Exclusive design features make possible accurate and vibrationless readings on the roughest roads as well as in the shop. Regular use of this instrument will save its cost many times over. Send for Booklet 144-E.

11" x 8" x 8"—Wt. 29 lbs.

Cambridge Instrument Co., Inc.
3732 Grand Central Terminal
New York City

CAMBRIDGE EXHAUST GAS TESTER

INCREASE SHIPPING FLOOR CAPACITY

MAKE EXTRA TRIPS WITH TRUCKS YOU HAVE NOW

BY USING

"ROLOFF" DEMOUNTABLE BODIES

ASK US HOW

ROLOFF, INC.

KENDALL SQUARE
CAMBRIDGE: MASS.

ORDER A TRIAL CAN

CHANGE YOUR OIL ONLY ½ AS OFTEN

GLAZOIL, added to your present motor oil, will halve your oil costs—you change ½ as often. GLAZOIL cuts repair bills too—"runs-in" new motors properly and lengthens life of old motors. Won't burn—won't freeze—won't break down. Keeps all wearing surfaces constantly "wet" with lubricant. Write us today for complete data. The Glazoil Products Co., 1614 Coutant Ave., Cleveland, Ohio.

Glazoil
COLLOIDAL GRAPHITE
REDUCES FRICTION—PROLONGS MOTOR LIFE

Cost Accounting in the Fleet

(*Continued from page* 39)

routes; whereas, there should be a correlation between the labor and the mileage run.

10. The present system does not permit an easy comparison of vehicles in regard to costs and statistical values, for the yearly summary is spread over three large pages.

11. The statistical data is incomplete. No provision is made for calculating the miles per gallon of gas or per quart of oil.

12. Explanations of expenditures are not listed. It is difficult to determine the nature of past repairs, and the recurrence of the same type of trouble does not stand out. Such a case might be the faculty of a certain type of truck to habitually break springs, for instance.

(EDITOR'S NOTE: Now that we've briefly reviewed the cost-accounting system in use by the Combined Publishing Company, the author will next present a cost-accounting system which he has especially designed to fit the particular needs of this firm. You'll be looking for this in our next issue, won't you?—H. C. F.).

●

Slick-Up Slashes Paint Costs

(*Continued from page* 12)

For the present, the paint manufacturers' instructions can be highly recommended. However, it *is* our purpose to attempt to show how a fleet can be maintained attractively and economically over a long period at a low cost.

In the writer's opinion, a well-applied synthetic job should last three years before another complete job is necessary. To get maximum service, the best of materials should be applied by the best of workmen. The amount of money saved by using second-grade material and employing inexperienced help is small compared to the expenditure involved, and is false economy in the long run.

To get off to a good start, have the best material applied by an expert, under favorable conditions. Instruct the drivers that paint jobs cost money, and caution them against driving through shrubs and trees and otherwise damaging the finish. Whatever the reason, a paint job seems to deteriorate more rapidly after it has acquired a few blemishes. Mud and film should never be allowed to accumulate and remain. Trucks should be washed thoroughly with soap (not too strong) and warm water at short intervals.

Necessary touch-ups should be done by a painter, not by inexperienced help. At the end of a year, if reasonable care has been used in protecting the finish, it can be given a brand new appearance at no great expense without a costly tie-up of the vehicles.

At this stage the following procedure is advised: Dress the top; paint inside if necessary; clean and spray the chassis. If the fenders have been dented and scraped, straighten and re-spray. In most cases this will be found necessary. Polish body with rubbing compound, easing up a little around stripes and lettering. Re-varnish sign panels or lettering; touch up body if needed with original color and paint mouldings. The result will be an appearance equal to new. The cost, only a fraction of a complete job.

Synthetic enamel is so durable that no serious deterioration may be expected for another twelve months. If reasonable care is used during that period, the truck will be found in but little worse condition than at the

end of the first year.

At this point—two years after the original job—the same treatment is advised that was recommended after the first twelve-month period, with the exception of the body. If the job was well done originally, there will be enough material on the body to permit a light gas-sanding. By gas-sanding is meant sanding with gasoline, benzine or some prepared solution. This operation will leave the surface smooth and clean, yet solid in color. The lettering need not be destroyed, but the striping probably will suffer.

After this operation is completed, touch up any blemishes carefully with the original color, taking care not to spread the spots. Re-stripe over the old. Touch up lettering if necessary; repaint mouldings. After everything is dry, wash down thoroughly with water, wipe carefully with a tack-rag, and spray on a copious even coat of clear synthetic. The expression "tack-rag" refers to a piece of cheesecloth saturated with rubbing varnish or other sticky substance and allowed to set up. By passing it over a panel surface, all particles of dirt and foreign materials will adhere to the tack-rag.

After the fenders and chassis are re-sprayed, and the other necessary operations have been completed, the appearance will again be almost equal to a new paint job.

At the end of the third year, the truck may still be presentable. At this time, however, a complete job is recommended.

Here are a few words of caution which might aid in avoiding trouble. Peeling, cracking, chalking and other finish troubles are often the result of inexperience or negligence. In isolated cases they may be attributed to an inferior product. In this case the solution is to change to a better one. Insufficient stirring is also a grief producer. Take a few moments longer and be sure the different components are thoroughly blended.

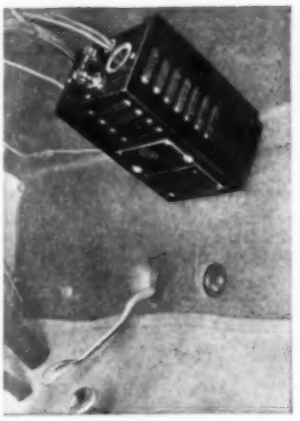
Applying synthetic enamels in a cold or drafty room prevents perfect oxidation with possible harmful after-effects. Try to keep the finishing room warm. Before applying any material, be sure the metal is absolutely clean, free from remover residue or grease. Sand thoroughly with a fairly rough paper in order to give tooth for the primer. Use the primer prescribed for the enamel being used. Use only the solvents advised by the maker. Follow his instructions closely as to drying time. Avoid the use of lacquer primer; its adhesion qualities are inferior. Leave deep holes for the body man to fix; putty is not made to build bodies.

If the fleet is large enough, determine the amount of material used on each truck and have the paint company make up rations. This method prevents waste and promotes order.

The Gordon Baking Company of New York is coping with the paint situation in the above manner under the direction of the writer. It has a well-equipped, well-lighted paint shop with DeVilbiss spray equipment and ventilation. A painter is delegated to night-duty, doing general garage work. In addition, he takes care of minor touch-ups, sprays wheels and an occasional fender and chassis. The regular routine work is performed by the day staff.

It has been found that keeping the paint in good condition, besides being better advertising, is *more economical* and the best all-round policy. This company has given every system of painting a thorough trial and has come to the conclusion that for truck painting, synthetic enamels have no superior. The writer agrees.

REDUCE
BATTERY MAINTENANCE
COSTS



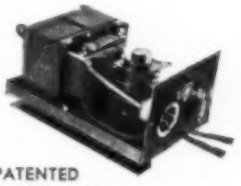
New KRW
AUTO-CHARGER

Plenty of power for zero-weather starting—ample current for extra lights, heater, defroster and other electrical accessories. The new K R W Auto-Charger is ideal for fleet operators—insures high efficiency, saves money, eliminates time lost in frequent battery changes. May be installed in any car or truck and plugged into any electric socket while vehicle is standing, or may be installed on wall of your garage.

$6.75 F.O.B. Buffalo

EXCLUSIVE K R W FEATURES

K R W Charger operates on *both* 25 and 60 cycles; 50% larger transformer than most other makes, yet uses only 50-75 watts; *exclusive* patented Thermal Relay prevents current flow-back if power fails; two charging rates, (2 and 5 amps.) with automatic control against overcharge. No liquids, bulbs or moving parts—simple, compact, complete—and unconditionally guaranteed for 1 year. Install under dash or in motor compartment by drilling only one hole; works while the car is idle.

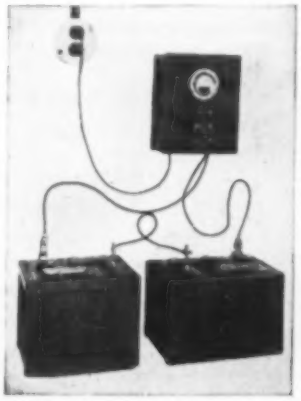


PATENTED THERMAL RELAY

Write for literature, data sheets and quantity discounts.

$9.75 F. O. B. BUFFALO

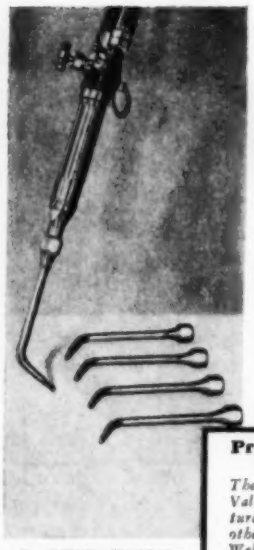
This 5-10 Ampere Heavy duty Charger is made for garage installation only. Handles one or two batteries at a time. 12 foot extension cord and steering post socket for recharging battery without removing from the car, $1.60 extra.



K. R. WILSON 16 Lock St., BUFFALO, N.Y.
EXCLUSIVE BUILDER OF APPROVED FORD SHOP EQUIPMENT SINCE 1916

Are you *keeping step*

WITH SHEET METAL WELDING



TEN SECONDS IS ALL YOU NEED TO CHANGE BLOWPIPES

Every day, more and more sheet metal articles are being built or repaired by oxwelding. A single blowpipe capable of welding any gauge of sheet is now necessary equipment in every shop.

The Prest-O-Weld Type W-106 Blowpipe for automobile repair and sheet metal production shops is built to give just the right gas mixture for light welding, brazing, and soldering. With its five standard tips, which can be set at any angle for vertical or overhead welding, you can make clean strong joints in all ordinary thicknesses of sheet metal. A quick-acting ball type joint makes changing tips a matter of only a few seconds, with no wrench necessary. By adding an inexpensive stem tip adaptor, you can attach Type W-107 Aircraft Blowpipe Tips for extremely light gauge metal. Like all new-type Prest-O-Weld Blowpipes, the W-106 is easy to handle, rugged enough to stand up under rough usage, and extremely low in gas consumption.

Ask your jobber to show you the many advantages of the Prest-O-Weld Type W-106 Welding Blowpipe.

Prest-O-Weld Detachable Valve Body

The Prest-O-Weld Detachable Valve Body is one of the features of the W-106 and all other new-type Prest-O-Weld Welding Blowpipes. It enables you to substitute a larger welding blowpipe or a cutting blowpipe in ten seconds without disconnecting the hose.

Prest-O-Weld Type W-106 Welding Blowpipe complete with five tips, Nos. 3 to 7 inclusive, lighter and wrench, $21.00

Prest-O-Weld Type W-106 handle assembly, with tips, lighter and wrench (same as above but without Detachable Valve Body) $14.00

Prices slightly higher west of the Rocky Mountains.

PRESTOWELD
WELDING AND CUTTING APPARATUS

THE LINDE AIR PRODUCTS COMPANY
Unit of Union Carbide and Carbon Corporation
UCC
IN CANADA, DOMINION OXYGEN COMPANY, LTD., TORONTO

Sales Offices:
Atlanta, Baltimore, Birmingham, Boston, Buffalo, Butte, Chicago, Cleveland, Dallas, Denver, Detroit, El Paso, Houston, Indianapolis, Kansas City, Los Angeles, Memphis, Milwaukee, Minneapolis, New Orleans, New York, Philadelphia, Phoenix, Pittsburgh, Portland, Ore., St. Louis, Salt Lake City, San Francisco, Seattle, Spokane, Tulsa

LINDE OXYGEN - PREST-O-LITE ACETYLENE - OXWELD APPARATUS AND SUPPLIES - UNION CARBIDE

For Economy and Comfort

SPONGEX

(Sponge Rubber)

Honeycomb Cushions

for TRUCKS and BUSES

are unequalled

Our booklet "A New Way to Ride on Rubber" tells why.

THE SPONGE RUBBER PRODUCTS CO.

Derby, Connecticut

DURABILITY

—Year after Year of Active Service

Marmon-Herrington offers 28 models of trucks with all wheels driving. Capacities range from 1½ tons upward.

Look over the record of any Marmon-Herrington all-wheel-drive truck that has been in service three years or more and you will learn what real durability and real stamina actually mean in a motor truck. All over the United States and all over the world, Marmon Herrington vehicles are doing bigger jobs, hauling bigger payloads and giving a greater dollar's worth of trouble-free service. Marmon-Herrington Co., Inc., Indianapolis, Indiana.

MARMON-HERRINGTON
ALL-WHEEL DRIVE

Why Truck Tires Don't Stand Up

(*Continued from page* 21)

mounted on a wheel are not properly matched; consequently one tire carries considerably more load than the other. On crowned roads it is usually good practice to mount the tire having the most wear on the inner position. This compensates to some extent for the crown in the road and both tires more nearly carry their equal share.

On high speed operations where the tires revolve rather rapidly, operators sometimes resort to the practice of "bleeding" the tires. This consists of allowing some of the air to escape after the pressure has been built up.

This reduces the pressure to normal, but there are certain dangers which accompany this practice. Although the tire is relieved of some small excess carcass stresses, the temperature within the tire increases to a point high enough to cause failure in a great many instances. Another drawback to bleeding, is that when the tire stands and is allowed to cool the pressure falls to a point considerably below the recommended pressure and on the next run the temperature rises very rapidly and usually results in tire failure.

On operations where speed and heat are as much of a factor as load, an advantage can sometimes be obtained by increasing the pressure of the outside tire when traveling over highly crowned roads.

Other common sources of failure in truck tire operations include the use of improper rims, improper dual spacing, improper flap assembly and many mechanical difficulties which develop as a result of worn brakes, bearings, bushings, etc.

Most reputable tire dealers are in a position to assist in eliminating many of these causes of failure. In order to trace such failures and thus lead to their ultimate elimination, it is usually advisable to keep an accurate record of the performance of each individual tire.

We have presented in a previous issue of this publication, a plan for keeping an accurate record of tire costs on a performance basis. This procedure is of great assistance in helping the fleet operator to not only eliminate many of the principal causes of failure in tire performance, but also leads to a more efficient operation generally. In a great many instances poor tire performance is also accompanied by poor truck performance. A careful study of the entire problem usually leads to many worth while economies.

●

585 Cases Per Truck Per Trip

(*Continued from page* 23)

ment in the skirting on the sides of the body.

The finished appearance of the truck is massive and powerful, yet compact. The paint is applied in a pleasing color scheme employing cream and light blue. The name Feigenspan runs the full length of the body. A coat of aluminum paint on the roof completes the ensemble.

If the equipment is an impressive sight by day, it is equally so at night, since electric lighting has been used freely and with great effect. There are four colored marker lights at the upper corners of the body, four courtesy lights in the skirting, three dome lights inside, connected with a red warning signal light on the dashboard, and a floodlight on the cab playing on the brewery name painted on the front of the body—all in addition to the regular driving lights. There are also electrically-illuminated signal arms operated from the dashboard by a switch. (*Please turn to page* 43)

585 Cases Per Truck Per Trip

(*Continued from page 42*)

Accessories of the deluxe cab include the dome lamp, electric fan, holder for the driver's papers and a "Servis Recorder" which furnishes a log of the truck's daily run, showing duration of stops and actual running time.

Since the truck is used on long runs, there are two auxiliary gasoline tanks in addition to the regular tank. In these three tanks the truck can carry a total of 110 gal. of fuel.

Business men, of course, are materialistic. Items which may be classified as luxuries or extras are carefully scrutinized as to whether they will eventually pay for themselves in advertising value, employee efficiency or otherwise. Roemer Brothers believed that the special features of this large truck would pay, and therefore it is furnished with many appointments not found even in high-grade passenger cars.

With aluminum construction it is a different story—one which deals with dollars and cents. Whenever aluminum replaces heavier materials with a consequent saving in weight, operation is made cheaper. Every extra case carried by an aluminum body pays a certain revenue, which will in a definite number of trips repay the difference in cost between aluminum construction and other types.

●

Strict Gas Tax Enforcement Brings More

THE effectiveness of strict enforcement of gasoline tax laws in increasing the tax yield without raising the tax rate is shown by the experience of seven states which in the past few years have increased enforcement appropriations, enlarged collecting staffs, and strengthened their laws.

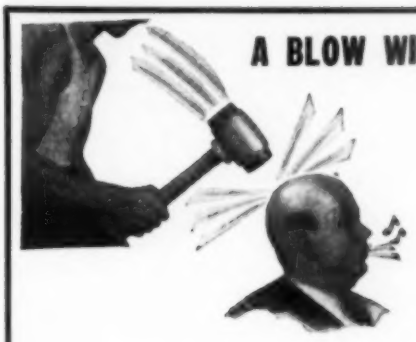
Connecticut in 1931 strengthened the weak spots in its gasoline tax law. Last year, although gasoline consumption decreased as a result of a 5 per cent drop in motor vehicle registrations, the same two-cent-per-gallon tax yielded 20 per cent more tax revenue than it had two years before.

Pennsylvania, by making a serious and well-financed effort to collect the tax, maintained its income virtually undiminished despite a 25 per cent reduction in the tax rate, while Texas increased gasoline tax collections $3,000,000 in nine months by amending its law and by giving the administrator an adequate staff, a larger appropriation, and a little encouragement and support from other departments of the state government.

Last year Kansas, by inspecting gasoline tank trucks crossing her borders, and by scanning refund claims carefully, increased revenue $1,000,000 during the year, and Nevada eliminated many fraudulent claims for exemptions, thereby reducing the number of its refunds by 80 per cent.

Arkansas recently eliminated all exemptions and refunds, and state authorities predict gasoline tax revenue will increase $600,000 during the next twelve months. South Dakota, aided by a stronger law and more adequate auditing of refund claims, reduced such claims 33 1/3 per cent in number and more than 50 per cent in financial loss.

Gasoline tax authorities believe that the experiences of these and other states which have increased gasoline tax revenues without raising tax rates show that efficient collection methods determine the true productivity of a levy, rather than a higher tax laxly enforced.

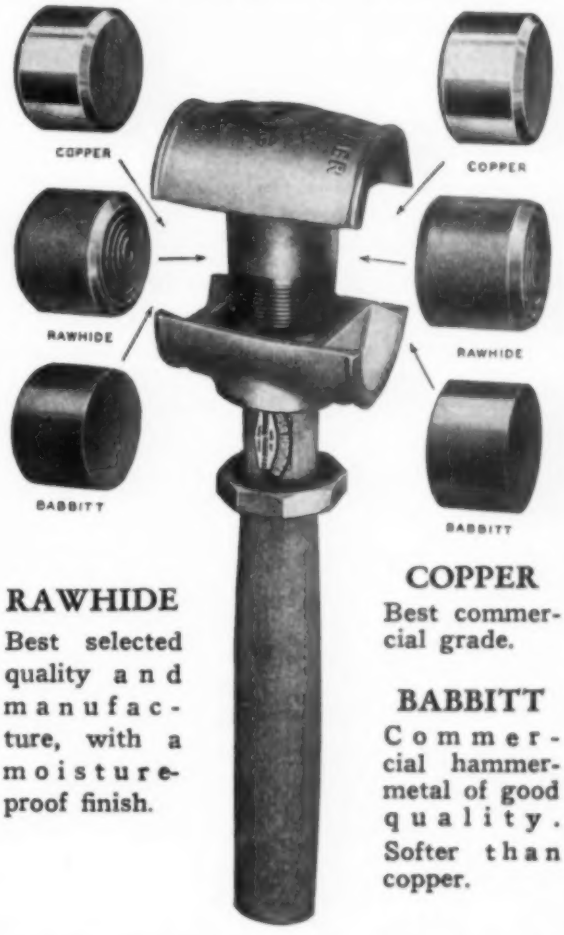


A BLOW WITHOUT A DENT

With the

"BASA" HAMMER

Any Combination of Faces Can Be Quickly Obtained



RAWHIDE
Best selected quality and manufacture, with a moisture-proof finish.

COPPER
Best commercial grade.

BABBITT
Commercial hammer-metal of good quality. Softer than copper.

In finishing and assembling work it is often desirable to use a hammer that can strike more than one kind of blow.

With the "BASA" HAMMER various kinds of faces can be used, making possible the desired combination of faces for any particular class of work.

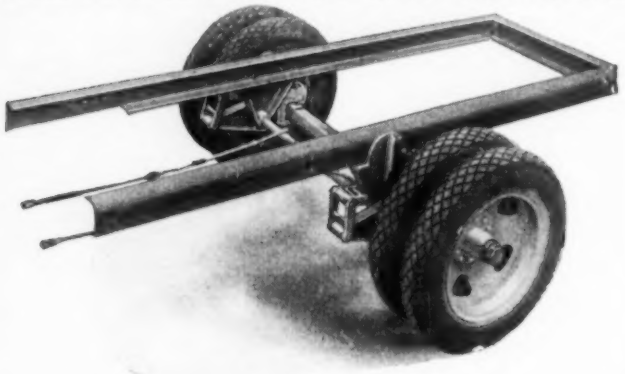
Write for prices and full particulars

GREENE, TWEED & CO.
Sole Manufacturers
109 DUANE ST. NEW YORK

MODEL 15 UTILITY

Six Wheel Attachment for Trucks of the Ford and Chevrolet Class

Is illustrated here as shipped completely assembled, with frame extension. Ready to slip extension over the truck frame, rivet or bolt in place, connect up brake levers and spring shackles, move spare tire carrier assembly to the rear, and drive away as a proven six wheel truck. WHSE. STOCK IN NEW YORK CITY



Utility was First in the United States to develop 6 wheel attachments for 4 wheel trucks. Now has distributors in all principal cities. Write for special folders.

UTILITY TRAILER MANUFACTURING CO.
Box 1407 Arcade Annex Los Angeles, California

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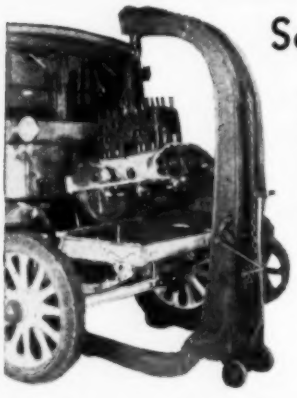
A SUPERIOR METAL FACED PLYWOOD PANEL FOR BODY CONSTRUCTION

Write for samples and prices

UNITED STATES PLYWOOD CO. INC.
603 W. 36th. ST. NEW YORK CITY



Serves Many Purposes

Canton Portable Cranes are being used to advantage in scores of ways in fleet maintenance departments. For example, when removing heavy duty steel wheels, the crane can be used to raise the vehicle and then lift and remove the wheel itself. Wherever the vehicle may be, the crane being portable, can be easily taken to it—thus saving time and money. Write for full particulars.

THE CANTON FOUNDRY & MACHINE CO.
CANTON, OHIO
New York Office—Room 704
401 Broadway

Newark Transportation Meeting Highly Successful

ONE of the most ambitious and successful meetings ever staged by the Metropolitan Section of the Society of Automotive Engineers was that devoted to transportation and maintenance subjects, held last month in Newark, N. J., from the 8th to the 10th inclusive. Upwards of 500 members and guests of the section and of the New Jersey Motor Truck Association, which joined with the section in staging the meeting with the cooperation of the Newark chamber of Commerce, attended and were well repaid for their time.

The meeting was held coincident with a truck show put on by the same organizations, which was considered one of the finest shows of its kind ever staged in the Metropolitan area. Some sixty trucks and much accessory equipment were shown and attracted a large attendance.

Nearly every important phase of motor transportation was considered at the meeting. One of the six sessions and an inspection trip to the Newark Airport were given over to air transport matters. The meeting was significant of the closer organization of highway transportation which has been effected on a national scale, and is now headed by the American Trucking Associations with which many state trucking associations, including that in New Jersey are affiliated. J. F. Winchester, president of the N. J. Motor Truck Association, in commenting on this, pointed out that the trucking industry has now gained recognition in Washington as an important and organized industry and is believed to have gained the sympathetic cooperation of Federal Coordinator of Transportation Eastman as well as that of President Roosevelt himself.

Besides two luncheons and two dinners which formed a part of the meeting, there were six sessions dealing, respectively with taxation, Diesel-engined vehicles, the trucking code, fuel, highways and aviation.

In the taxation session it was pointed out that motor vehicle owners now pay annually over 25 per cent of the value of the motor equipment they operate in the form of taxes, yet such taxes, as well as restrictions are likely to be increased. Better organization will help to check the upward taxation trend, it is hoped. The code sessions brought a lively discussion of code and rate matters and the Diesel session made it apparent that compression-ignition engines for highway vehicles are gaining ground, especially in England. In the fuel session much was said about the advantages of butane and propane as motor vehicle fuels as well as in truck body refrigeration work. Problems of highway use were pertinently covered in the highway session, by both users and state authorities.

Although the unfair propaganda and legislation against highway users fostered by the railroads was roundly condemned, patient consideration was given to a spokesman for the railroads who stated the point of view of the latter and was applauded for a temperate and reasoned address in this regard. Air transportation was covered from both the operator's and the federal control angle and in a way that proved instructive as well as interesting.

Taken as a whole, the meeting was one of the most helpful to the society members and others in attendance that has ever been staged for those concerned in highway and related transport matters. Many voiced the opinion that a similar meeting and another truck show should be staged in Newark again next year.

Recommended Legislation for Truck Industry

A TWELVE-POINT program for the regulation of interstate truck traffic was proposed in a report of the Highway Transportation Committee of The National Industrial Traffic League, approved by the Executive Committee of that organization, at a meeting recently held in Chicago.

The League's committee has had the matter before it since last March, and has been giving close study to truck matters with a view toward recommending what should be done, at the coming session of Congress, to bring about that coordination to which Joseph B. Eastman, National Coordinator of Transportation, has referred in a number of his recommendations to President Roosevelt. The League's committee, in its report, however, expressly states that it does not recommend any specific bill, but intends to judge such legislation as may be proposed on the basis of the twelve points contained in its report. These are:

1. If legislation should contemplate federal regulation of interstate trucking rates, such rates should be judged by the costs and conditions of highway transportation without reference to the level of the rates required to be charged by the costs and conditions of other types of transportation.

2. Whatever policy of truck regulation may be adopted by the federal government it should be based on the maintenance and fostering of that type of transportation.

3. No attempt should be made arbitrarily to define the difference between contract and common truck carriers.

4. No regulation should apply to local transportation, even when interurban transportation may be between localities in different states.

5. Initial carriers should be made responsible for loss and damage to freight.

6. Operators in interstate traffic should be required to obtain certificates or permits.

7. Certificates or permits should not be revocable by any regulatory authority.

8. The regulatory body should have the power to suspend proposed interstate rate schedules and in such cases the burden of proof of the reasonableness of the rates should be on the parties filing them.

9. There should be uniform state legislation with reference to dimensions of trucks, loads and speeds of motor freight carriers.

10. Common carriers by truck should be required to carry liability, damage and cargo insurance.

11. Common carriers by truck should be regulated both with reference to maximum and minimum rates; contract carriers with reference to minimum rates only; and there should be no regulation whatever of vehicles operated by owners or corporations not for hire.

12. Any proposed regulation should carry a clause excepting common and contract interstate trucking companies already in operation.

Preliminary to whatever regulation might be adopted by Congress, the committee recommended that the present code authority of the trucking industry require the filing of interstate trucking rates and the making of such rate files open to the public. It was also recommended that such practice of rate filing as well as truck registration under the code be studied and that their practice under the code be considered an "experience" period from which data, useful in formulating legislation, may be developed.

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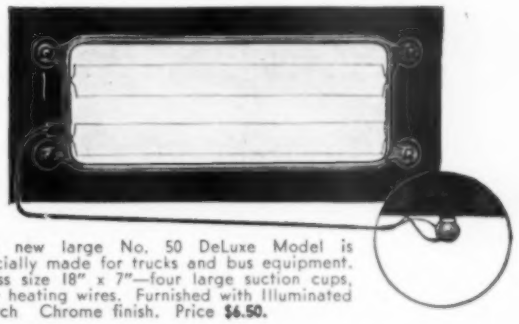
CLEAR VISION *for* WINTER DRIVING

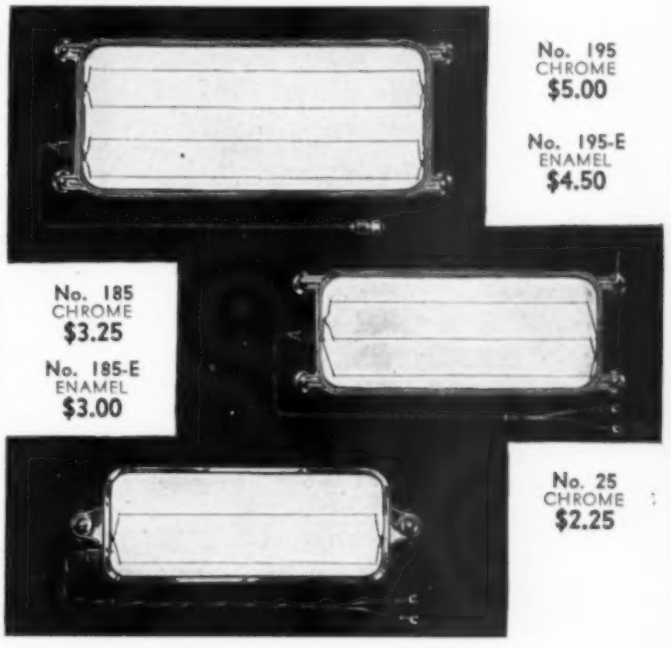
DEFROSTERS

Keep your men from driving

"BLINDFOLDED"



This new large No. 50 DeLuxe Model is specially made for trucks and bus equipment. Glass size 18" x 7"—four large suction cups, four heating wires. Furnished with Illuminated Switch Chrome finish. Price **$6.50.**



No. 195 CHROME **$5.00**

No. 195-E ENAMEL **$4.50**

No. 185 CHROME **$3.25**

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No. 25 CHROME **$2.25**

WINTER is here. Sleet storms come at a moment's notice. Frozen windshield, cloudy vision, delayed schedules, danger lurking in the foreground.

Be sure all the cars, trucks or buses in *your* fleet are equipped with CASCO Defrosters *before* they start out for the day—or the trip. Keep them always ready for instant use. They will help your drivers maintain schedules or delivery hours, relieve them of cloudy vision and doubtful driving through snow, sleet or freezing rain storms.

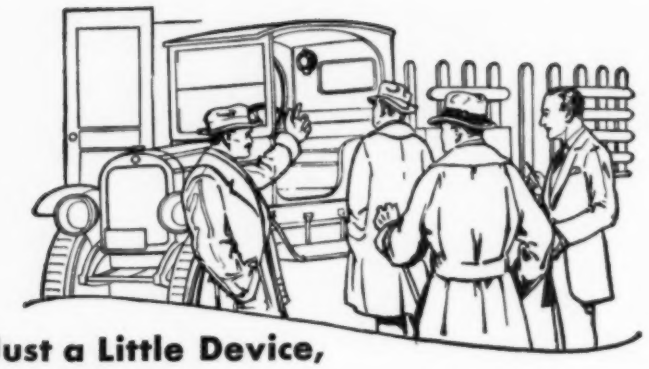
CASCO Defrosters allow you to drive through such storms at normal speed, and also prevent fog or condensation on the inside of windshield, even without use of current. Securely mounted by four Rim Seal Suction Cups and rubber flange seal.

A Complete Line of Casco Defrosters to Fit All Cars, Trucks and Buses

Order From Your Wholesaler or Write Us for Full Information

CASCO PRODUCTS CORP., Bridgeport. Conn.

Say "I saw it in FLEET OWNER"—It Helps!



"It's Just a Little Device,
AND YET—
It Shows Every Move Your Truck Makes!

It's only 7 inches in diameter. . . It weighs only 2 pounds. . . It is tucked away inconspicuously in one corner of the cab . . It is not connected with hub or running gear. . . It's merely attached by a couple of ordinary screws or bolts.

And yet this simple little device *tells you every move your truck makes, all day!* It is called the SERVIS RECORDER.

It furnishes you each day a simple chart showing all busy time and idle time, for 1 day, 3 days or 7 days.

It is automatic—the truck "writes its own record"—it is mistake-proof—renders arguments unnecessary. Just tells the facts. Over 100,000 trucks are now equipped with the SERVIS RECORDER. Would you like further information?

This chart shows up all delays

Here's a stop of 2 hours!

THE SERVIS RECORDER
"Keeps Trucks Busy"

The Service Recorder Company
1422 Euclid Ave., Cleveland, O.

Grease Now Packed in Cartridges

GREASES packed in cartridge form to fit a new type of grease gun are now being marketed by the Standard Oil Company of Indiana. To fill the new type of gun, the operator merely slips a factory-loaded cartridge into the barrel of the gun, which is then ready for use. The cartridges are being made in one-pound capacity and include several grades of lubricants. A partially-used cartridge can quickly be replaced with another one of different grade, without wasting the former, it is stated. Cartridges in larger sizes may be offered in the near future.

U. P. S. Gets Another N. Y. Contract

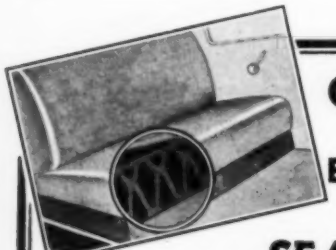
ANOTHER large department store, Oppenheim, Collins & Co., operating two houses in Metropolitan New York, recently joined the increasing number of stores being served by United Parcel Service, beginning last month, according to a U.P.S. announcement. Deliveries began November 5th.

Warehouse Facilities Available (Adv.)

EASTERN branch and warehouse of prominent manufacturer of replacement parts for automobiles, trucks and buses, located in New York City, seeks additional line to warehouse and distribute. Has well established business with jobbers and fleet owners; also display space, drive-in service, delivery equipment, etc. Fully equipped to accomplish a thorough job. Might also consider national distribution. Address B. S., c/o Editor, FLEET OWNER, 90 West St., New York City.

Increase Your Export Business (Adv.)

RESIDENT Buyers' Representative, For Western Europe and French Morocco, interested in open lines of automotive products, including replacement parts, accessories and shop equipment. Planning trip abroad in early future. Manufacturers interested in additional foreign business in territories not at present covered, are invited to correspond. Address B. B., c/o Editor, FLEET OWNER, 90 West St., New York City.

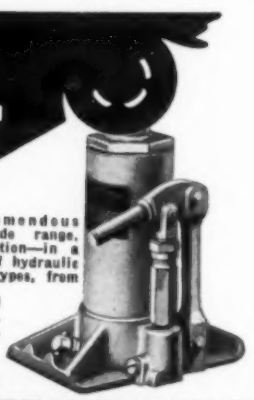


GOOD NEWS!
. . .
BLACK DIAMOND
All Rubber
SEAT CUSHIONS

are used by fleet owners throughout the country in replacing worn out cushions in their trucks. Made of special processed semi-sponge rubber that lasts longer and rides easier. No upkeep expense. Manufactured to fit any cab. Write or wire today for complete facts and low prices.

KARPEX MANUFACTURING CO.
INDIANAPOLIS, IND.

The BIG LIFT



Here's tremendous power, wide range, easy operation—in a full line of hydraulic jacks, hand and floor types, from 1 to 75-ton capacities. For floor, curb, road, and shop use — Buy Blackhawk. Ask your Jobber Salesman. Write us for literature.

Blackhawk Mfg. Co.
Dept. FO-12 Milwaukee

BLACKHAWK HYDRAULIC JACKS

Say "I saw it in FLEET OWNER"—It Helps!

Gas-Electric Bus Uses Trolley Wires, Too

AN interesting application of two sources of power to a bus has been made by Public Service Coordinated Transport, Newark, N. J., recently.

The bus, of standard gas-electric type, is also equipped with a pair of trolley poles and a separate controller for that source of power. Where trolley wires are available, the bus is operated from the trolley wires, at considerable less cost than through the gas-electric drive. More power is available, too, and greater acceleration and hill-climbing ability are enjoyed.

On routes where trolley-wires do not extend the full length, the gas-electric drive is utilized to operate where the wires terminate. It is stated that the bus engine develops about 100 h.p. When operated from the trolley wires, h.p. equivalent to about 250 is obtained.

●

Motor Industry Pays One-eighth of All Revenue

APPROXIMATELY one-eighth of the Federal government's total internal revenue taxes during the fiscal year ending June 30, 1934 was paid by motorists in the form of excise taxes on automotive transportation, according to the Bureau of Internal Revenue.

Motor vehicle owners paid $309,110,435 in taxes on gasoline, lubricating oil, pipe line transportation

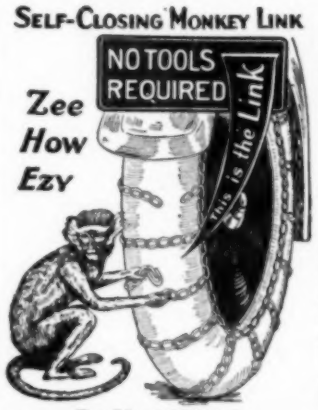
(Please turn to page 48)

MASTERCRAFT
TRUCK BODIES

Production
and
Custom Built
Body Equipment
Vocationally Designed

LUCE MANUFACTURING CO.
Lansing, Michigan

SELF-CLOSING MONKEY LINK



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FREE Samples
To Fleet Owners
Self-Closing Monkey Link

—and all you do to get it, is tear out this advertisement, write your name and address in the margin, and mail it to us.

Why Buy New Chains?
Repair With Monkey Links

Your chains aren't worn out when the cross links start to let go. Repair with Monkey Links. Your drivers can do it on the road. No tools required. No appreciable time lost. Chains as good as new. Save money. Increase safety. Send for your FREE SAMPLE now.

Flower City Specialty Co.
ROCHESTER, NEW YORK
At All Reputable Jobbers

PATENTED STREAM-LINE OIL FILTER

gets 7½ lbs. of solids from one drum of crankcase drainings

Just like finding money for fleet owners and operators! The new patented Skinner Stream-Line Oil Filter enables you to reclaim 94% to 98% of your crankcase drainings at a cost of only 1½ to 4 cents per gallon. And you get better lubrication service from your oil because all the harmful grit, carbonaceous matter and silica are removed (right down to particles of 1/250,000 of an inch).

Save The Price of a New Bus or Truck

Hundreds of the biggest and most conservative fleet users in the country are already using the new Skinner Stream-Line Oil Filter. And they all report substantial savings and highly satisfactory operation.

Let Us Prove It to YOU

Accept this free offer—no obligation or cost—just mail the coupon. We'll have our representative demonstrate to your complete satisfaction with your own waste oil in your own plant.

Skinner Stream-Line Oil Filters may be purchased in sizes ranging in price from $125.

SKINNER MOTORS, Inc. 2225 Dalzelle St. Detroit, Michigan

MAIL THIS COUPON TODAY

SKINNER MOTORS, Inc., 2225 Dalzelle St., Detroit, Mich.
We want complete details on the new Stream-Line Filter
☐ Have representative call ☐ Send complete information

Name_____ Address_____

City_____ State_____

A Tip To
Passenger Car and Light Truck
FLEET OWNERS

In your quest for lower maintenance costs you may find it cheaper to repair certain parts—but when it comes to Fenders, in most cases it is far more economical to REPLACE.

Chances are that the actual replacement costs less, and your car or truck is available much more quickly for duty.

Check with a Fostoria Distributor and prove the point. An arrangement with him will save you money.

THE FOSTORIA PRESSED STEEL CORP.
Fostoria, Ohio

GENUINE
Fostoria Fenders

THE WORLD'S STANDARD REPLACEMENT FENDER

HOME ... CHARGE ... 5¢
... Your Battery
for a NICKEL with the New Hi-Rate
10 to 6 Ampere AUTOMATIC
HOMCHARGER

PLUGS in any lamp socket. Charges any auto-type battery overnight. Creates no radio interference. Uses no expensive bulbs, "dry units" or messy liquids. Has only ONE moving part, replaceable for $1.00, after thousands of hours' use. The FASTEST, most EFFICIENT and LONGEST-LIVED home charger made. Ideal for Battery Station, Garage, Trucks, etc. Money-back guarantee. Nearly one million sold since 1920 at $19.50 list. Now, only $16.95 *postpaid* (or at your dealer), complete with ammeter, 10-foot cables, dash plug, etc. Write for introductory proposition and FREE booklet. *(Commission Salesmen Wanted.)*

THE AUTOMATIC ELECTRICAL DEVICES CO.
Dept. 10, 324 E. Third St., Cincinnati, O.

of oil, passenger cars, trucks, tires, and tubes, parts and accessories. By far the largest portion of this amount came from gasoline and oil, $227,830,020.87. Although the tax on gas and oil are only two of the 118 taxes levied on the petroleum industry, they produced 64 per cent more Federal revenue than did distilled spirits, electrical energy, telephones, telegraph, radio, and cables combined.

Federal excise taxes represent on the average a toll of approximately $13 per motor vehicle, and they are one-third as high as the taxes levied on motor vehicles by the states. Federal revenue obtained from each automotive commodity is shown in the accompanying table.

Gasoline	$202,575,034
Lubricating oil	25,254,987
Pipe line transportation of oil	10,379,369
Motor vehicles	70,901,045
Total Federal Motor Taxes	**$309,110,435**

•

This Town Has No Use For Taxes

LAST year Funk, Nebraska, the only town in the United States that does not have a property tax, collected $200 from gasoline pipe line taxes, a poll tax, tobacco and beer license fees. There was no use for the money, however, so the money is still in the town treasury.

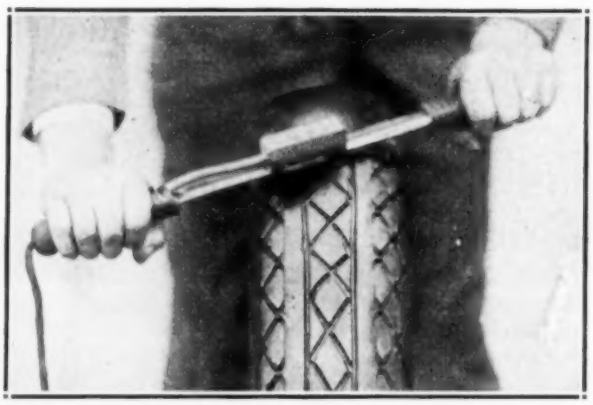
•

Farms Out Tube Repairs; Hot-Patches Used

"OUR inner tube repair work is farmed out to a tire shop. We average about 8 flats per month. The tube is taken to the vulcanizer and it is ready to go, all mounted, in 30 minutes, with a hot job being done on it. Hot-patches have never come loose in service. Some cold-patches have. We believe that the hot-patch method is best. An electric vulcanizer is used.

"The average complete cost of an inner tube repair is about 50c. Tubes last from two to three years in our service. We do not use puncture-sealing tubes.

"The outside shop doing our work takes the tire off, repairs the tube, and puts the tire back on the rim, all for a cost of 50c and our tubes will last around three years, with few exceptions."—*C. F. Biggs, Foreman, Schreeck's Ice & C. S. Co., Baker, Ore., operating a fleet of 6 trucks and 6 passenger cars.*



GOOD NEWS FOR THE AUTOMOBILE DEALER, GARAGE OWNER AND TIRE DEALER

The Stackhouse

"Pull-type" Electric Tire Groover

NEW! SPEEDY! EFFICIENT!

Winter weather makes smooth tires doubly dangerous. Good brakes stop the wheels but tires stop the car. Make that "USED CAR" more salable, bring more money, and save the cost of new tires. SAFETY—TRACTION—INCREASED MILEAGE for your customers by regrooving "bald" tires at $1 each. The complete job in 6 minutes. Garage Owners and Service Stations everywhere are earning these extra profits. Quick turn-over and increased revenue for the Tire Dealer. A Stackhouse works equally well on inflated or deflated tires. Endorsed by world's largest tire manufacturers.

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BAILEY AND COMPANY
219 North 63rd Street Philadelphia, Pa.

Survey Emphasizes Dangers of Monoxide

A RECENT examination of several hundred cars of all classes taken at random from State highways in New England showed that the air within the driving compartment of more than one-half of them contained measurable traces of carbon monoxide; and that five in every hundred contained a sufficient quantity of this deadly gas to account for the driver becoming so dulled mentally as to fail to react promptly in an emergency or an impending accident. These cars, operated by drivers so affected, are equally as hazardous to general highway safety as they would be if operated with defective brakes.

The primary source of carbon monoxide when found in automobiles is exhaust gas—either from the car itself or from another car being followed too closely. Exhaust gas analyses made with the "power prover" showed that more than one-half of all cars were producing excessive quantities of carbon monoxide in their exhaust on account of maladjustments in the ignition or carburetion systems.

Secondary factors are leaky exhaust manifolds, flanges, mufflers, and loose or ill-fitting floor boards and bulk-heads. Through these openings exhaust gas filters into the driving compartment of the car. Exhaust gas may also blow by worn pistons into the crank case, emerging from the oil filler cap or other vent into the space under the hood. The concentration of carbon monoxide within the car depends upon the amount of this gas in the exhaust mixture, and the extent of the leaks referred to. Ventilation is another factor.

Trucks were found to be more dangerous than passenger cars because—

1. A larger percentage were found to be out of adjustment and producing excessive carbon monoxide.
2. Influenced by loading, greater quantities of exhaust gas are produced per vehicle.
3. A greater percentage are operated with exhaust leaks and defective mufflers since vibration and other noises "drown out" the sound of escaping gas.
4. Floor boards become loose from vibration and are left unattended because tidiness is an unknown factor in truck cabs.
5. The terminal location of exhaust pipes with reference to the driver's cab is often such as to permit exhaust gas to follow eddy currents and enter cabs from rear or side windows, even though the entire exhaust system may be leak-proof.
6. The relatively long runs requiring many continuous hours at the wheel of a truck make low concentrations of carbon monoxide dangerous, since the absorption of this gas in human lungs is a cumulative process.

The effect of proper maintenance as a remedy is obvious. Periodic tuning of the motor *with precision instruments* will minimize the amount of carbon monoxide produced. Tight pistons, gaskets, mufflers and floor boards, together with long exhaust pipes, will prevent infiltration of the gas into the cab.

Other benefits also will result, for a motor properly adjusted gives greatest mileage and best performance as well as controlled carbon monoxide. By eliminating the carbon monoxide hazard thousands of hitherto "unexplained" accidents will be prevented, insurance rates will be decreased for that class of risk and the general health and lost time record of employees will be improved.

The highway investigations upon which these conclusions are based were conducted by representatives and instruments of the Cities Service Oil Company.

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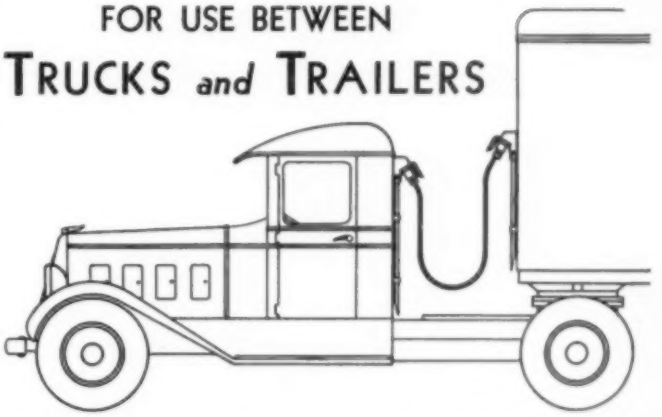
Electrical Connectors
FOR USE BETWEEN
TRUCKS and TRAILERS



BUILT for severe service, these heavy-duty truck type plugs and receptacles reduce hazard, and road delays, eliminate the constant maintenance required by ordinary connectors not suited to trucking service.

Pyle-National plugs and receptacles are offered in 2, 3, or 4 pole types for connecting lighting, signal, and electric brake circuits. Substantial weatherproof construction, a positive locking connection, and self-aligning contacts insure keeping positive contact under vibration, road shocks, and other severe operating conditions.

Send for special bulletin describing this equipment, and its application to trucks and trailers.

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1334 Nc Kostner Ave., Chicago, Ill.
Send me Jletin No. 189 on truck and trailer connectors.
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For the Oil, Gasoline, and Water Connections

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Perfect materials, precision workmanship and simplicity verified by long experience, deliver double-performance to users of Wisconsin Double-Reduction Axles.

Rigidity

Notice the size and wide spacing of Timken Tapered Roller Bearings supporting the spiral bevel pinion and spur pinion. Spur pinion and cross shaft are integral; and the spiral bevel gear is spline-mounted on the cross shaft. Proper accurate alignment and adjustment of all gears and bearings are easy.

Special Alloy Steel

All pinions and gears are machined to closest limits from special electric furnace alloy steel forgings. Teeth are carburized and hardened to obtain ideal wearing surfaces, with tough cores.

Positive Lubrication

Proper lubrication is vitally important. Wisconsin design provides adequate oil channels. With correct lubricant at correct level, every part runs in a bath of lubricant. Standard oil seals prevent leakag .

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WISCONSIN AXLE COMPANY, Oshkosl

THE TIMKEN-DETROIT AXLE COMPANY
Detroit, Michigan

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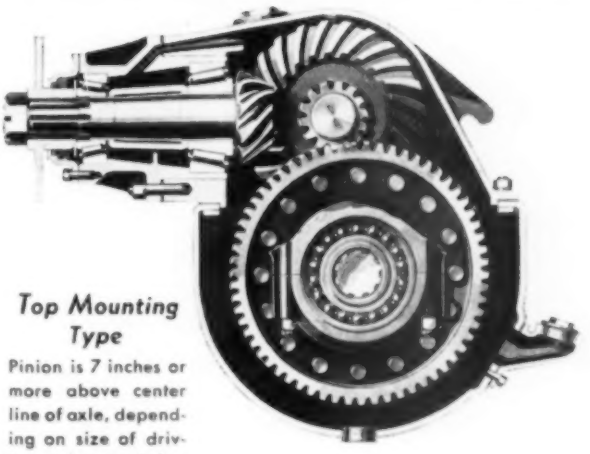
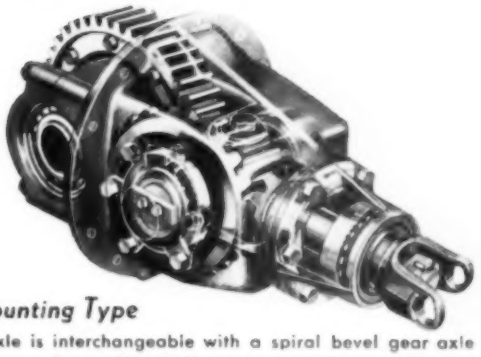


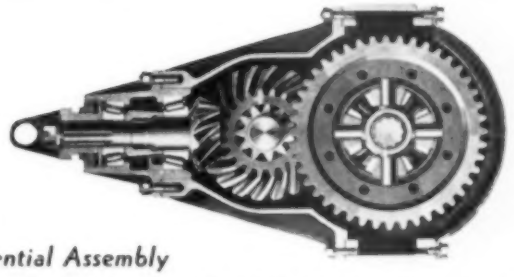
Top Mounting Type

Pinion is 7 inches or more above center line of axle, depending on size of driving unit; permitting straight-line drive from transmission to axle. Both sets of gears form single driving unit, easily removable from housing. Axle is interchangeable with worm-drive axle having worm shaft on top.



Front Mounting Type

This type axle is interchangeable with a spiral bevel gear axle without change of propeller shaft location. Minimum dimension is possible from center line of axle to bottom or top of housing bowl. Driving unit is easily removable.



S

ntial Assembly

4-pinion type. Case is two flanges, with spur-gear ugh both. Pinions and side gears backed by ers.

4,000 POUNDS LESS
BODY AND CHASSIS WEIGHT

made these tires run 80,000 miles

STELLER TRANSPORTATION CO.
316 Tenth Avenue North
MINNEAPOLIS, MINNESOTA

August 27, 1934

Aluminum Company of America,
1345 Northwestern Bank Bldg.,
Minneapolis, Minnesota

Gentlemen:

We are pleased to state that our 25 ft. aluminum semi-trailer unit purchased from Eckland Brothers Company of this city two years ago has given us excellent service. We believe this semi-trailer was one of the first units in the Northwest to utilize an aluminum chassis built integral with the body. It is approximately 4,000 lbs. lighter than former type equipment of similar strength and capacity.

To date it has travelled over 95,000 miles. We have had no painting or maintenance expense other than minor panel repairs caused by accident. Incidentally, the body is lettered directly on the aluminum which saved us painting costs. The original tires were used intact up to 80,000 miles and three of them are still on.

This experience together with performance of our smaller aluminum bodies has convinced us that properly con aluminum equipment is a good investment.

Yours v
STELLER TR
Roy
Pre

● As a matter of fact, three of the original tires were still on, after 95,000 miles!

These are figures that speak volumes for the advantages to be gained by specifying Alcoa Aluminum for Truck Body and Chassis construction. Many operators utilize all the great weight-saving of Alcoa Aluminum to add profitable pay-load to be carried every trip. When extra weight of pay-load is not d , the saving in tire costs, plus the savings in consumption, that come from hauling ht, are all the reason any operator can ying light, strong Alcoa Aluminum. your builder figure on your next LUMINUM COMPANY OF AMERICA, ling, Pittsburgh, Pennsylvania.

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